THE

SOUTHERN AGRICULTURIST.

SEPTEMBER, 1832.

PART I.

ORIGINAL CORRESPONDENCE.

ART. LXIX.—*An Address delivered before the Horticultural Society of Charleston, at the anniversary meeting, July 11th, 1832; by* Dr. S. H. DICKSON.

Mr. President, and Gentlemen of the Horticultural Society!

In the performance of the duty allotted to me, of preparing the first annual address, I labour under the disadvantageous consciousness of a want of experimental acquaintance with the themes, which it would seem, in order, on this occasion, to discuss. Though somewhat familiar with the interesting details of vegetable physiology and a most enthusiastic florist—if that term may be properly applied to designate one, who is rather an admirer than a cultivator of flowers—I must confess myself to be neither a practical gardener nor scientific botanist. Nevertheless, yielding to no one, either in a fondness for the pursuits which unite us, or in a due sense of their real value, I will endeavour to lay before you a brief sketch of the objects, at which, in my view, such an association should aim—the inducements to engage and persevere in our undertaking, and the pleasures and benefits belonging, as well to its prosecution as to its ultimate success.

It would not, perhaps, be easy to define with exactness the several provinces of the agriculturist and the gardener. The cultivation and improvement of flowers, ornamental

shrubs, and fruits, properly so called, would, of course, be left to the latter; but, in respect to an extensive class of vegetable productions, esculent, or otherwise useful, some fall in one domain and some in the other. Speaking, in a general way, the sphere of the horticulturist is more limited in its extent, but, greater nicety is demanded in his operations. To his care are confided the more delicate and rarer plants—such as require in their culture constant attention and special protective guardianship. To the agriculturist we look for clothing, and the provision of substantial and nourishing food. Our necessities require him, therefore, to provide on a large scale, and in profuse abundance. The gardener, on the other hand, prepares for us articles of mere luxury—viands, less adapted for subsistence than the gratification of a refined taste, and of the instinctive fondness for variety—objects of decoration and ornament, rather than of supply or shelter. But it would be unphilosophical, unwise and irreligious, to regard his occupations as unimportant and useless. He, "who made all nature beauty to the eye, and music to the ear," created all things animated and inanimate, to be subservient to the destinies and desires of man. He placed him, at his birth, in a garden; surrounded and shaded him with

> "All trees of noblest kind for sight, smell, taste—
> Flowers of all hue, and without thorn, the rose."

And fed him with "ambrosial fruit of vegetable gold." He takes a parental delight in our appropriation of every additional mode of enjoyment, which is not purchased at the expense of some dereliction of duty, or some breach of moral propriety.

Our association would be unworthy a protracted existence if it did not, from the beginning, use every efficient effort to introduce and foster here, as extended a diversity of nutritious vegetables as can be adapted to our soil and climate. All esculents, produced under circumstances of soil and climate in any way similar to our own, should be made subjects of careful and repeated experiment. "Nothing is denied to well directed labour." No difficulty is insurmountable. Let but the object be of sufficient consequence to justify the expenditure of time and money which will be required to effect it, and ultimate success can and will be almost certainly attained. Is the earth unpropiti-

ous or unsuited to the support of the plant we wish to introduce? Artificial soils of almost every quality may be prepared and made to resemble closely enough the natural bed from whence we import the stranger. Is our sky hostile in its immediate influences? Vegetables, like animals, may, I do not doubt, become fitted for any position—may become domiciliated in any latitude. They must undergo an acclimation, it is true, and during this process they are feeble, liable to much injury and disease, and require, for the time, special attendance and protection and skilful management; but, in succeeding generations of plants of the same kind, less and less protection will be demanded, until at last these descendants of delicate exotics will be found to bear exposure as well as the hardiest natives. Nay, there are not wanting examples in which such transplantation has vastly improved the original. I will only instance the potato, one of our most valuable articles of food, which, in Lancashire and Ireland, has attained an excellence undreamed of by those who first found it in the southern section of our distant hemisphere.

I will readily acknowledge that there are extreme cases in which the remarks I have just offered will scarcely apply; but, in a majority of experiments made with proper caution and perseverance, they have been found reasonable and correct. In every situation may be found flourishing freely and sturdily, exotic emigrants, both from arctic and equatorial regions, and it may be truly affirmed, that the limit of vegetable adaptibility is not yet fully ascertained. The Peach, supposed to be derived from Persia, is now a stranger no where—civilized man carries it with him into every desert, and plants at the foot of every mountain. Among flowers we may mention the numerous varieties of Rose—a native of the genial and delightful countries of Asia, whose fragrance is to be perceived in every breeze that fans the cheek of beauty in any quarter of the world. The Lagurstrimia, a splendid flowering tree of recent introduction among us, has adapted itself so readily to this new locality, that it flourishes luxuriantly in every enclosure of our city and suburbs.

It is evident that experiments, based upon these views, must, in the first instance, be tried on a small scale, and managed with a nicety incompatible with the extended pursuits and varied duties of the farmer and planter—and

hence arises the necessity, which will be observed as we proceed, that horticulture should not unfrequently act as the pioneer and handmaid of agriculture.

With regard to fruits of fine flavour or particular delicacy, successful cultivation of rarities of this kind is every where so liberally rewarded by private luxury, that the expense of fabricating an artificial climate and fictitious soil for this purpose, will, in all probability, be abundantly compensated. Yet the Society has done well in offering some definite encouragement, which may serve at least, to give reputation to the enterprizing gardener, who shall introduce any estimable novelty, or who shall overcome, by his assiduity, the difficulties of season and temperature, in the early procurement of a familiar or indigenous vegetable. If the most useful of citizens is the farmer, because he makes two blades of grass grow where one grew before, neither can the gardener be destitute of merit who extends the period and augments the number of innocent gratifications.

But the very highest pecuniary inducements, within the resources of the Society, should be addressed to adventurers, whose success would confer a great public benefit, and, in cases where the experiment, to be properly made, implies considerable risk and outlay, and requires time and patience as well as industry and energy. Thus, if any one should prevail in domesticating the Olive, the rich present of the goddess of wisdom to her favourite Attica, among us, he would surely be regarded as a public benefactor. This tree, which Jefferson justly esteemed as one of the kindest gifts of Providence to man, and considered, with reason, as probably more valuable than any individual, even of the bread stuffs, would seem from all the circumstances of its history, to be fairly within our reach, provided the effort to make it familiarly our own, be carried through with a due degree of perseverance and patient attention. I cannot help thinking the abandonment of our hopes from it, and the indifference which now exist concerning it exceedingly censurable. It seems to have been forgotten, that the trees, in their most favourable location, are of peculiarly slow growth; they do not begin to render good crops before they are twenty years old; proving the justice of the epithet bestowed by the poet upon this vegetable glory of Italy and Spain, when he designated it as the "*tarde crescens Oliva.*" What then can be looked for in regard to it from the inha-

bitants of a country, one of whose orators has said truly and forcibly, that "no man expects to die in his father's house!" A country in which property fluctuates more and changes hands faster than it ever did in any other nation or any previous age. A private citizen will not here give his time to, or risk his money in a scheme of which the results are in themselves doubtful, and of which it is probable, there being no return until a date somewhat distant, that neither he nor his children will reap any direct advantage. Such an enterprize, then, must be instituted by public men, or by associations like our own, and at a joint expense, and with the view of benefiting not ourselves, or even our immediate descendants, but our common country. Of the utility and importance of this addition to our productions, I need say nothing, they are matters of familiar calculation; the chances of ultimate (though perhaps remote) success, I consider fair and promising. It is affirmed that wherever the Orange will grow at all, the Olive will stand better, being the hardier of the two.

If we have not here the mountain shelter, behind which it flourishes on the shores of the Mediterranean, we can afford, by our forests, which still overshadow so large a portion of the surface of our country, a protection almost equally available. Evergreens, it may be remarked in passing, which abound in our low country, are found, not only to give protection to fields or lawns which they surround, but are affirmed also to generate, by the processes of life and vegetation, never suspended in them, but always active in every season, a notable degree of heat, by means of which they temper the keen winds whose force they have mechanically broken. Surely this fact ought not to be lost upon us. A suggestion has been repeatedly made, though I do not know whether even yet acted on, that there are certain stocks of indigenous growth, upon which the Olive when engrafted will grow readily and produce abundantly—among others the *(Fraxinus Ornus)* has been named. I would respectfully propose the early consideration of this subject, and an appropriation of the largest sum that can be set apart from the funds of the Society—that this sum be invested as to produce an annual and so a compound interest—the whole accumulated amount to go to the individual who shall first succeed in the cultivation of the tree—the procurement and preparation of its fruit and the manufacture of oil.

Similar efforts might, perhaps, be successfully made, if made perseveringly, and on a proper scale with the Bread-fruit, the Banana and the Plantain; at least it will hardly be denied that the attempt is worthy the time, labour and expense which might be required. So many favourable circumstances must concur to render the cultivation of the Coffee-tree feasible, that we cannot hope to see it growing in the open air in any part of our country north of Florida, if indeed, it be practicable there. But the construction of hot-houses, and the production of artificial heat may be so cheaply managed, that it is matter of fair question, whether, under the vastly increasing demand for this delightful berry, and the contracted limit of its ordinary and natural supply, arrangements for the perpetual production of its fruit in this way would not become profitable. Such culture has been long familiar at Mount-Vernon, and if I am not misinformed, the success is complete in the ripening of coffee of high and excellent flavour.

There would seem to be no difficulties of any kind in regard to the growth of Tea, which could not be overcome with a little effort of patient toil. The beverage prepared from the infusion of its leaves, is used familiarly by greater numbers of the human race, probably, than any other liquid, if we except ardent spirits; for which, if we could substitute these "cups that cheer, but not inebriate," we should "do the state a high moral service." A pecuniary recompense which should merely save the experimenter from actual loss, might open the way here for important results.

A more humble set of examples, of like nature, may deserve brief mention. The Gooseberry and Currant have resisted hitherto all attempts at domestication among us—we have not the beautiful yellow Strawberry, (from the hue of which, perhaps, the name obtained) many of the best varieties of the Cherry, and the Plum are neglected, and the Quince has been allowed of late to become rare. Should not these be at least enumerated among the fruits we propose to encourage and foster by our patronage.

Nor should the Society in the mean time lose sight of the prospect of improvement in quality of the articles already enjoyed by us. The attention of our gardeners should also be directed to the points of economy in mode of culture and abundance. To raise the greatest quantity of the best kind—to produce successive crops for the longest pe-

riod and at the least expense; these are the problems to be solved and the conditions of their solution.

Stimulated by the hope of gain, or of reputation, may not some one teach us to make a better use of the numerous and delightful fruits profusely scattered throughout our gardens. Is it impossible to dry here, as in eastern countries, or otherwise prepare the Fig, which drops its luscious sweetness from overloaded branches, and rots in heaps for want of the knowledge of means for preserving it? Shall the clusters of the Vine always perish, mocking us as they do now with the hope of exhilarating and delicate wines. Perhaps this subject may seem to you already threadbare, and indeed the public attention has been for some time past very steadily directed to it. Much disappointment has been experienced, and a degree of indifference has naturally begun to be substituted for former sanguine expectations. I can not help thinking, however, that the period is at hand when we shall derive the most valuable results from the efforts made and making. Most of the difficulties which have presented themselves, appear to me to arise from the prevalent error of procuring our vines from countries whose summer temperature is lower than ours, and whose seasons are shorter. We are naturally tempted to this by the reputation which such species have attained; but they are entirely unsuited to our climate and atmosphere. The Grape is forced by the unaccustomed heat of our spring; it ripens rapidly and must be plucked in the months of highest temperature and greatest moisture; the juices set to ferment run promptly through the vinous into the acetous condition, or are only checked in this destructive process by the infusion of large proportions of fiery spirit, which alter their quality and ruin their flavour. It is, as I have said, from countries cooler than our own that we import our wines. France, for example, and Germany for the most part. I know of no experiments made here with those of Palestine in our own latitude, or Greece, or the South of Italy. Yet the wines of this latter region are of great diversity, and of flavour unexcelled. We might encourage experiments with these—or we might import from the tropical districts of our own continent, grapes that being repelled would ripen more tardily here, and afford us potable wines, thus giving a new value to our poorest lands. But why need we seek abroad for the vine which grows over the whole surface of

our State, in every swamp and on every water-course. It attains no where a larger size, nor does it produce any where fruit in superior abundance. Within two miles of our city there flourishes a vine of greater circumference and diameter than any of which I can find a record either in the old or new world.* Nothing would seem to be wanting but the gradual improvement of this native stock by culture through successive generations. Does any one suppose the sparkling Champagne, the soft Burgundy, or the exquisite Lacryma Christi, was fermented from the juice of the wild grape of France and Italy. No: it is to the long and laborious cultivation of ages that we owe their present excellence. We must discover what soil is suited to what varieties; what aspects, and what exposures, they affect; at what particular period of maturation they must be plucked; what processes are best fitted to the preparation of their diversified wines. Even in countries where all these points are well ascertained, the vintage is still matter of uncertainty and no crop is regarded as more insecure. We shall never succeed, then, if we allow ourselves to be daunted by difficulties met with every where.

The consequence of this neglect of culture is shewn in the degeneracy of wines formerly highly valued. The reader of Horace will not forget in travelling from Rome to Naples to inquire for the *Falernian* once so much esteemed; but not even his classical enthusiasm will enable him to endure the insupportable acrimony of the acrid fluid so called in modern times.

The Poppy, of which we may exclaim in the language of one of the old writers in reference to its medical uses—"*Magnum Dei donum*"—the great gift of Providence—the poppy grows readily here, and its cultivation to any extent would be easy. The very best opium that I have ever seen was made in South-Carolina, and its preparation could not fail to be extremely profitable. Indeed, with very little encouragement our gardeners could make us altogether, or very nearly, independent of foreign countries, in respect to the vegetable *Materia Medica*, and I beg to recommend this topic also to the future consideration of the Society.

* This vine grows at Col. Yeadon's farm on Ashley river. It is of 4 feet 10½ inches in circumference, and completely overlays with its branches and foliage two wide spreading oaks.

ART. LXX.—*On the Culture of Rice; by* J. BRYAN.

"Charleston, July 2, 1832.

Dear Sir,—I will now attempt to answer the querries which you put to me last spring, when I had the pleasure of receiving a visit from you at "*Campvere*," relative to the management of a rice-crop on Cooper river. I assure you, that it was not for want of proper respect for your request that I have so long delayed in sending you this; circumstances beyond the reach of my control have alone prevented. Your surprise and disappointment, however, will be very great when you find that nothing new is communicated on the subject, or perhaps, nothing that does not already appear upon the pages of your useful journal. Nevertheless, as your chief desire, in this instance, appears to be that of imparting practical information, and as some young adventurer in rice-planting may get a hint whereby he may derive some benefit, you are at liberty to publish such parts of this statement as you may think proper. As the questions are very numerous, and go so far into detail, I know not how I can so well meet your views as by giving a full narrative of the "*modus operandi*" that has been steadily, and somewhat successfully practised for many years on my plantation. I am, however, not prepared to say whether it differs in many respects from the general practice on the river; but my impression is, that there is no material difference. In order to prevent prolixity as much as possible, I will divide the subject into the following parts or heads:—preparation of the land, planting, hoeing, watering, and harvesting.

First: *Preparation of the land*—my river banks have as much base as the locality will admit of, raising very gradually to the top, particularly on the outer or river side, that the water may lay as shallow against the bank as possible, whereby the bank is much less liable to break than if built up with but little slope. So great is the rise and fall of the tides in our river, (seven feet in ordinary tides) and so light and husky the soil, that except the banks are well covered with highland clay, the labour upon them is endless, having to raise some parts every year. The cross or dividing banks are ten feet wide at the bottom and four

at top. The river margin within the field is forty feet wide, the margin of the cross banks is twenty; the marginal ditch which surrounds the field is six feet wide at top, and three at bottom, and five feet deep; the small ditches are two feet wide, and three deep—they are seventy five feet, apart and run in the direction from the highland to the river. If the field is lengthy, say, nine or ten tasks, (a task with us is one hundred and fifty feet square) I put a centre ditch, four or five feet wide, crossing the small ditches which greatly facilitates their draining. The trunk is put down to low-water mark, and as nearly opposite the centre of the field as circumstances will permit. Eighteen or twenty acres is the best size for a field, in my opinion; to which one trunk, three feet and a half wide, and eighteen or twenty inches deep in the clear, is quite sufficient. My trunks are twenty-eight feet long, and as we are (to our sorrow) liable at times to salt water, and the utmost diligence on the part of the best trunk minder cannot, at times, prevent sticks or trash getting into the trunk door, by which the field gets partially or wholly flowed. I have two trunks which are located in the following manner—one is placed under the river bank in the usual way—a half moon bank the size and height of the river bank, is made on the outer or river side, and another trunk the exact size of the one under the river bank, is put down immediately in front of it, and just far enough to allow the doors to work without interfering with each other. In this way, this field is doubly guarded against salt water, for it is scarcely possible that the same accident would happen to both trunks at the same time. Moreover, another great advantage attends having the double trunks, which is this—if either wants repair or adjusting, it can be taken up, or a new one put in its place at your leisure, at any season of the year without the least risk, or even encountering the hurry and inconvenience of doing tide-work. Having banked and ditched the field and put down *double* trunks, I will now state what is done in preparing the field from the time the old crop is cut until the new is planted—first observing, that it is perfectly impossible to succeed in making a full crop of rice if the fields are not thoroughly drained by deep ditches and the trunks perfectly tight. As soon as possible after the rice has been cut and carried out of the field at harvest, it is gleaned of all the *ear* rice that remained sctattered over the

field, and the water is immediately put on for four or five days; then run off and the field kept as dry as possible until the stubble is dry enough to burn, or is hoed off and carried ed out for manure. The object of this flowing is to soak every *grain* of rice remaining in the field, so that it will either germinate or rot, and prevent its becoming volunteer rice the next season. So important do I regard this operation, that if, from the want of time, or any other cause the field cannot be gleaned within a few days after harvest, I put on the water and sprout the *ears* of rice, together with the scattered *grains*, believing it better to lose the gleanings than to have a field polluted with volunteer rice. By pursuing this plan and not allowing horses or cattle of any description to go into the fields, and planting none but choice seed, I have succeeded in sending my rice to market, for a few years past, as free from red as any that comes to Charleston. This is not said with a view of boasting, but merely to show why my rice which was formerly polluted with red is now free from it.

As soon as the stubble is off, the fields that are to be turned up are dug just deep enough to turn over a sod of the old roots. In our old light lands, I have found by repeated experiments, that it is a disadvantage to turn up the land very deep, for although the *quantity* produced would be greater when dug deep, yet the *quality* is far inferior to that which is dug light or not at all. Rice produced on land that has been dug deep, on Cooper-river, is much more chalky and dark than from land not turned up. When the field is turned up, the ditches are shovelled out to the original depth, if possible; the mud and trash from them is carried off and scattered or put to fill up creeks on low places, for if any mud is allowed to remain at the edge of the ditches, it soon forms a ridge, and is very injurious to draining, the field is then flowed deep and kept so until ten days or a fortnight before planting, when it is run off and kept very dry. A day or two before you trench, chop and level the field, four hands to an acre, by this time the first crop of grass and volunteer rice will have been well up; this chopping, together with the trenching, and covering with the beaters, completely destroys the first crop of grass, and enables the rice to get a long start of the second crop; it is, in fact, more important than the first hoeing of young

rice, as you can much more easily keep a head of grass all the season, when your crop is well up on a clean field. It is advantageous to change the water frequently in order to get as much of the sediment as possible which is deposited, and of which there is a great deal in river water; it is not uncommon to see it nearly an inch thick upon some part of the mill pond after six month's flowing in winter. It gives to our long cultivated land, a freshness and fertility which makes it in some degree more like new land, gives great vigour to the plant, and clearly proves, to my mind, the advantage of winter flowing. I regard it just as important to rice as the marsh-mud is to cotton on the old land of the islands. The above is the preparation when the field is turned up. But I greatly prefer not turning up the land when the field is in fine order; by which I mean, when the ditches are near and *deep* enough, and the trunks perfectly tight, without which, indeed, under any circumstances, success is impossible. The mode I allude to is this: the preparation is the same in every respect up to the turning off the water a fortnight before planting, *except* that the land is not dug up. A day or two previous to trenching, the alleys, between the old rows, are hoed up with the rice, or eight inch hoe, exactly in the same way as if you were hoeing rice, by which the ground is sufficiently stirred and loosened, and the grass as effectually killed *where* the rice is to be planted, and when you hoe your rice for the first time, the old rows of rice roots enable you to turn over a much more firm sod, and what grass is upon it is turned under and dies; but more of that under the head of hoeing. The saving of labour is very great by this cultivation; for example: when the field is dug up, previous to flowing, the task is three hands to an acre, and in chopping, four hands to an acre; equal to seven day's work of one hand; while by merely hoeing the alleys the task is two hands to an acre; the difference, consequently is, that it requires the work of one hand for seven days to prepare by the first mode, what one hand will do in two days by the latter, and I can confidently say, that as much and as good rice is made by the one way as the other. Nor is this the only advantage, for in trenching, you dispense with the use of stakes, merely trenching between the old rows, by which the markers, or stake men, (to be des-

cribed hereafter,) do three quarters of an acre each per day instead of half an acre.

(*To be continued.*) See page 528

ART. LXXI.—*On the Culture of Wheat; by* THOMAS PARKER.

"Rocky Grove, Abbeville District, 9th April, 1832.

Dear Sir,—In compliance with your request, to communicate to you such observations and remarks on agricultural subjects as my experience may suggest, I forward you an extract from my note book on the cultivation of Wheat The style is laconic, and seemingly dogmatical, but it was never intended for the public eye. The opinions expressed have been formed upon careful examination and minute observation, and minuted down for my own government as the result of my own experience; for I am one of those old maidish farmers, who keep a note book, in which I enter such remarks on agriculture, from time to time, as occurrences present to my mind, and which I occasionally refer to. If such extracts are acceptable to you, I may, as occasion offers, forward you more of them. You are at liberty to make such use of the present as you think fit.*

"Having raised crops of the different kinds of wheat cultivated in this section of country; in future sow the Haley wheat for an early crop, and the Lawler for a late one. The former is generally harvested the last of May, the latter about the middle of June. The Haley wheat does not make as white flour as the Little White wheat, but it does not require as strong land. The Lawler wheat makes very white flour, is a sweet wheat, and yields to the quantity of grain more flour than the other late wheats. The

* We shall always be happy in receiving such extracts, and hope that Mr. Parker will furnish us with them as often as his convenience will permit. We recommend, this plan, also, to other planters. These extracts will always prove interesting and valuable, containing as they always must, observations and opinions formed at the time or soon after the occurrences take place.—*Ed. So. Agr.*

early wheats are frequently injured by late frosts in the spring, the late wheats by the rust in the summer before harvest. To insure, therefore, a plenty of wheat flour for family use, sow both Haley and Lawler. The Haley may be sowed on as strong land as you please, whilst on very strong land the Lawler will, even in a moderately wet spring and summer, grow too rank and much of it fall down. Sow the Haley from the middle of November to the middle of December, if sown on strong land not before the 1st of December, or the danger from late frosts in the spring will be considerable. Sow the Lawler in October, the middle of the month is a very good time; if sown earlier, there is danger to the crop from the fall fly, if sown later than October, the rust is to be apprehended. The practice of ploughing in the seed deep, though better than that of barely scratching in the seed without previously breaking up the land deeply, is nevertheless erroneous; for seed ploughed in deep will come up irregularly, and the wheat will ripen irregularly and a loss will be sustained thereby. It is said, that the deeply covered wheat stands a severe winter best, as the roots are so much deeper in the ground. This is a mistake, for when the deeply covered wheat gets up it forms new roots near the surface of the ground, and its former deeply covered roots first get mouldy, then die and soon rot. The true reason why deeply covered wheat stands the winter best is, that the ground being *well and deeply broken up*, the wheat crop derives the same advantages therefrom that all other crops do: the winter frosts find the wheat more forward, stronger, and better rooted, although the roots, where they spring from the stalk, are no deeper under ground from deep covering than from shallow covering. In preparing to sow wheat, first break up the ground deeply and thoroughly with the plough, the deeper the better; then lay off lands ten or twelve feet wide across this ploughing; sow thereon broadcast a bushel of Lawler, or three pecks of Haley to the acre. By the sowing Lawler thus thick it is induced, I am disposed to think, to shoot up earlier in the spring than it will do if it is allowed too much room to stool, and by bringing it forward early as possible, there is less danger of its taking the rust; at any rate, if the land is good for any thing, a bushel is not too much. So, also, as it is important to sow the Haley sufficiently early in the fall, as that

it may gain strength before the severe winter frosts set in, and equally important to prevent it from running up too early in the spring for fear of a late frost, three pecks to the acre is sufficient, as this will give it room enough for stooling and according to the opinion I have formed will backen it somewhat. When the seed is sown, plough it in lightly and level the ground with draging a bush over it, or harrow in the seed with a large heavy harrow drawn by two horses.

Respectfully, your obd't. serv't.

THOMAS PARKER.

ART. LXXII.—*On eradicating Joint Grass; by* EXOTIC.

Mr. Editor,—A species of grass, (provincially) called joint grass, amongst us, on the sea-board, is a serious evil, particularly on light loose soil, and tends greatly to retard the crop in its growth and cultivation. Having had some experience to this effect, exertions have been made to control, if not eradicate this grass. The successful manner in which these efforts have been realized, is now submitted for the use of your readers. With a common dagon or Dearborn plough, a furrow is commenced on the outer extremity of the patch of joint grass, whatever may be its shape: a sufficient number of hands follow quickly and separate with their fingers the joint grass from the dirt, which is done very easily; the grass is at the same time thrown on the outside of the furrow, where there is no joint grass to be ploughed. The plough progresses inwardly, and not faster than the hands can clean off after it; the grass is to be thrown on the ground which is already cleared off, until the whole patch has been thus systematically ploughed, and the grass roots exposed on the surface for a few days to the sun, or severe cold, either of which will kill it, when it is raked up in heaps and burnt. When the season commences for the bits of remaining roots to sprout, it will then be necessary for children or light hands

to run over the ground and draw them out; at this early period, the root has no hold in the ground, and will readi y yield by pulling, but if allowed to take root, the same difficulty, as is usual, to get them out will occur. If the pieces of root are deeply buried in the bed, a small piece of iron to scratch a trifling depth, so as to afford sufficient purchase on the root, will lessen the difficulty and afford relief to the fingers.

The advantages of the plough over the hoe, are these, comparatively speaking, the plough *cuts* none of the roots but draws the grass from its bed, thus turning up long roots for gathering, but few short pieces remaining to sprout, each of which serve as seed, and require more attention to gather; the plough can be made to work the exact depth which the roots run, and a careful ploughman will not leave an inch of ground unploughed. This is not the case with the hoe, it cannot be made to go with the same system in depth and exactness, it leaves parts unturned through carelessness, &c. It *cuts* the roots into many pieces and never *draws* them out; it leaves innumerable small pieces firmly rooted in the earth.

After the crop of potatoes, or corn, or cotton is taken off, the ground should be deeply ploughed, and the odd and end remnants of this grass again gathered; this is best done in *dry hot* weather; crop of winter growth should, the first rain, be immediately sowed. Manure heavily, and put in wheat, rye, turnips, ruta-baga, cabbages, carrots, &c. I have now a fine patch of potatoes on a piece of land, from which wagon loads of this grass was thus taken last February, and, I believe, it can be compared with any in the neighbourhood for its forward growth and clean appearance. The crab-grass has required more hoeing and picking than the section from whence the joint-grass was taken.

AN EXOTIC.

ART. LXXIII.—*Remarks on manuring garden Peas with salt-mud; by* PAUL PRY.

Mr. Editor,—I perceive in your last number (June) a remark, I believe, made by yourself, that English peas manured with marsh mud have generally failed; this induces me to make the following communication. The last of February, I planted a patch of these peas in land which had been last year planted in cotton, a part of which had been *then* manured with animal manure, the remainder with salt-mud; the peas were manured with stable-manure; so great was the difference in the peas, that I thought at one time the rabbits had divided the patch sectionally, *a la tariff*. but on close examination, I cleared these consumers from the charge, by distinguishing the line of inferior growth drawn at the point where the mud ended, from the superior growth where the cotton had been manured with cow-pen. At some future day I will write you upon the subject of cultivating English peas, as a crop; the importance of which seems generally to be overlooked.

PAUL PRY.

ART. LXXIV.—*Rules for the housing and preserving of Sweet Potatoes; by* J. M. PHILLIPS.

"Christ Church Parish, June, 1832.

Dear Sir,—In compliance with my promise, I herewith furnish you with the rules by which I have been governed for many years in putting up my potatoes. I have been very successful in following them, and I hope they may prove beneficial to others. The first thing to be considered is the cellar, and I would recommend—

1st. The rails or puncheons to be split in July, or the first of August, and stacked up for drying.

2d. The cellar to stand east and west, with the door in the centre and perpendicular, to face the sun the most part of the day.

3d. To be made on as dry and high a spot and convenient for draining as possible, and made at least five weeks before wanted.

4th. To be double banked, by making a coarse frame to support the same. The earth to be taken four feet from the foot of the cellar all around, about three feet wide, eighteen or twenty inches deep; in this ditch, never let any water remain, but keep it perfectly dry.

5th. To be supported inside by short crutches, standing three feet high with poles, or rails laid lengthways in those crutches. By thus supporting your cellar, it will last you two years with safety, by airing it. When your cellar is finished, small fires to be made at each end, that it may be perfectly dry and clear of damp.

6th. The cellar to be perfectly tight with no air holes left—to have two doors, one a tight door for the inside, the other a slat door hung on, and opening on the outside; the slat will admit the requisite air as much as it may be necessary.

7th. The pine-trash to be well dried as usual, and laid in the cellar six inches thick at least, and if dried a second day, it would be of advantage.

8th. To begin with your potatoes—make four sortments in the field; 1st, all that are the least touched with frost or chilled—2d, all that are cut—3d, seed—4th, eatable potatoes:— to be harvested free from any kind of wet or rain, and brought in by sun-set, and on no consideration move them a second time, but put them where you intend to keep them from the first move out of the field.

9th. On commencing your housing, small fires to be made in any thing convenient, say a large pot, with a little earth in the bottom, every evening, until all are housed; your slat door then to be used, leaving the inner one open, and admit the air freely every morning, but shut in time, say two or three hours before sun-set.

Now, having housed your crop, you will find considerable damp, but not detrimental, if you will pay attention to it, which is one of the principal secrets to be observed. On seeing this in a moist morning you must have a small fire or a smoke of lightwood or pine bark made to clear up

this damp, and sometimes a second fire will be requisite, of which, you will be the best judge when sufficient. Observe to keep the tight, or inner door, open at the same time and they will soon become cool. In a state of moisture your potatoes will remain for ten or twelve days. After this, you will find them become more cool and much less damp in your cellar, which you should examine every morning. About this time you will find them sprouting, then you are sure of their keeping. But little trouble is now required—only, on seeing the damp, to make a little fire and open your inner door for air. The sprouted part of them is only on top of the heaps, not more than five or six inches deep; on examination, you will find the inner or lower part of them clear of sprouts, and dry. In my opinion, slips may be kept thus for two years; and root potatoes much longer than they generally are in our country.

The slats (of which the doors are made) is about two and a half inches in width and the same between each slat to be open. The door is about five feet high and two feet six inches wide.

A coarse frame is made with crutches for double banking.

Your obedient servant,

JOHN M. PHILLIPS.

Note.—The plan here laid down by our correspondent, has been successfully followed for many years, and we have been shown potatoes kept more than a year by him, in these cellars. Our readers will recollect, that another of our correspondents ("*Exotic*," p. 241, of the current vol.) experienced great benefit from the use of smoke in his cellars, and from all we can learn, we are inclined to believe that they may be kept longer in a sound state by following these rules, or similar ones, than any other mode in *common* practice among us.—*Ed. So. Agr.*

ART. LXXV.—*Anecdote relative to the Origin of Whitney's Saw-Gin; by* A SUBSCRIBER.

Dear Sir,—I perceive in the last number of your truly valuable paper, an interesting biographical sketch of the

late Eli Whitney, the inventor of the cotton gin. As every circumstance connected with that important discovery cannot fail to be interesting to Southern men, I take the liberty of giving you an anecdote which I received sometime since, from an intimate friend of Mr. Whitney, who, according to the best of my recollection, heard it related by Mr. Whitney himself. The anecdote itself is only important to show how small a hint will serve to stimulate the mind of a man of genius, and often be productive of the most magnificent results; thus exemplying the important truth, that it is in the order of Providence, that *great effects* should be produced from the *smallest causes;* a truth, beneath which lurks *a moral* of inestimable value, viz:—that in the march of improvement, "the widow's mite of experience" *offered* by the humblest individual, may, perhaps, be the means of enabling the philosophers and statesmen, and other "mighty ones of the earth," to lay the foundation of great and lasting benefits to mankind.

My anecdote is this:—When Mr. Miller, in the presence of Mrs. Miller, presented to Mr. Whitney the pod of green seed cotton, *(as stated by your correspondent,)* and asked him if he could not invent a machine to separate the cotton from the seed, Mr. Whitney took it in his hand, and after attentively examining it, asked Mrs. Miller for *a pin*, and began picking off the wool with it. At this moment, the idea flashed across his mind, that a machine composed of instruments with sharp points, which in a course of rapid revolutions, should tear off the cotton from the seed, would accomplish the object in view. He retired to his room with this idea in his mind, and never abandoned it until, by successive improvements, he brought the cotton gin to that state of perfection, which has justly ranked it as one of the greatest discoveries of modern times, and made it the chief instrument of the prosperity of the Southern States. It is melancholy to reflect, that this great benefactor of the South should have derived no substantial advantage from his invention. South-Carolina, indeed, made him a liberal grant of $50,000; but I was assured by the friend from whom I derived the above anecdote, that the trouble and expense incurred in the prosecution of the endless suits brought for the violation of his patent rights, (in which from some cause or other he invariably failed) deprived him, in the end, of more than he received from South-Carolina;

and that had it not been for the profits of his armory, established near New-Haven, he would have left his family in want. I ought to mention, however, that the failure of Messrs. Whitney & Miller, to make the cotton gin profitable, is attributed by some, who profess to be well acquainted with the circumstances of the case—to their refusal to furnish gins, or dispose of patent rights, a refusal resulting from their determination adopted in the first instance to get out cotton at their own machines, *upon toll*, and thus to secure to themselves *the monopoly* of the invention. This scheme is said to have roused great indignation in Georgia, and to have created *so strong* a current of public opinion against Mr. Whitney, that he was never afterwards enabled to recover a verdict in the Courts of that State, for any violation of his patent rights.

I give you this anecdote as I have received it, without vouching for it accuracy.

A SUBSCRIBER

ART. LXXVI.—*Account of an Agricultural Excursion undertaken by the* EDITOR, *in the Spring of* 1832.

(Continued from page 416.)

We left "*Campvere*" on the morning of the 16th, and reached "*Poshee*" the same day in time for dinner. Our kind host having offered to join us in our excursion, we determined to commence our visits the next day; and here we cannot refrain from expressing our thanks to Dr. Ravenel, for his great attention in accompanying and assisting us in our inquiries. We certainly could not have got on so well without his friendly aid, nor would the object of our visit have been near so well accomplished.

We remained about three weeks in the parishes of St. John's (Berkley,) and St. Stephen's, and in that time visited the plantations of the following gentlemen, Col. Thos. Porcher, Major Samuel Porcher, Messrs. Thos. Porcher, Thos. Porcher, jun. S. Mazyck, Daniel Broughton, Isaac Porcher,

Joseph Palmer, James Gaillard, S. G. Deveaux, and John Ravenel, besides passing through several others. "*Poshee*" continued to be our head-quarters, from which we made excursions in every direction. All the information we shall now give, has been derived from some one of these gentlemen, or others met at their houses. It is unnecessary for us to enter into the details of each plantation we visited, as the modes of culture on each assimilates in a great measure. There is not generally so great a difference in the management of the crops of neighbours, as of different neighbourhoods, or different sections of country. We, therefore, propose giving, in the first place, an account of the general mode of treating the several crops in these two parishes, and at the same time noticing any difference of opinion which may exist in regard to any of the operations. We shall afterwards, notice such things as fell under our observations, and as may be deemed proper.

The plantations we visited, (with one exception) are situated either in what is called middle St. John's or upper St. John's. The soil of the former is what may be termed a light sandy loam, resting on a substratum of clay, and is considered, well adapted to the culture of cotton. There is also a considerable quantity of swamp land, a large portion of which remains uncleared: that which is cleared, is cultivated in corn and oats, and is very productive of these crops. The soil of upper St. John's is much more sandy, and at one time was considered more valuable for the production of cotton; but, having been long under cultivation, without means being resorted to (until of late) to preserve its fertility, and being moreover of a lighter texture, it has become more exhausted, and being more thickly settled, the same facilities for manuring are not now enjoyed by the planters of this section, as are, by those of the middle section, consequently it has not preserved its relative standing.

The crops planted in these parishes are cotton, corn, potatoes, peas, oats, groundnuts, (occasionally,) and rice in sufficient quantities for home consumption. Cotton is the only crop cultivated for market, the black-seed or long staple is almost altogether planted; on some plantations, however, a small quantity of the green-seed or short staple is cultivated. This being decidedly the most important crop, we will take it up first in order, and give such information as we have collected relative to its management in these parishes.

Rotation.—There is very little rotation, if any, adopted in these parishes, such fields as are considered best suited to the growth of the different crops are selected, and if manure can be applied, they are cultivated year after year in the same, and where the application has been with a liberal hand so far from deteriorating, they have improved. Col. Thomas Porcher, pointed out a field to us which had been cultivated for fifteen years in succession, each year manured, and he then considered it as the most productive he had, having been decidedly improved, by the application of manure, although the same crop has been successively cultivated on it, and no rest allowed. Dr. Ravenel has several fields, in the same condition and under the same circumstances, and we heard of several others. It appears to be the general opinion here that when manures can be applied with each crop, no rotation is necessary, and as these fields are selected on account of some peculiarity attending them, they are loth to relinquish them for others, either not so well adapted or located. Where manures are not applied, a change of fields is resorted to, and if possible, those which are designed for cotton are thrown out, and permitted to grow up in weeds. They are generally cultivated two years and rested two. When, however, it becomes necessary to resort to a rotation, in consequence either of not having fields enough to change entirely, or manure for those cultivated, such as have been in potatoes are chosen in preference to those in corn. On either, it is a difficult matter to obtain a "stand," if prepared just before the time for planting the crop, especially that recently cultivated in corn.

Having premised thus much, we proceed to the culture of the crop; we will confine ourselves at present to fields already under cultivation. The rows or beds are almost invariable four feet apart, and this distance is preserved in their corn and potato fields, so that in changing from one crop to another; there is no difficulty created by old beds, which, if at improper distances, would have to be levelled before the new crop could be put in. In preparing for cotton, (if in old cotton fields) the first step is to break down all the old stalks and then to list down into the alleys all of the grass and weeds growing on the sides of the old beds. When manure is to be applied, it is, at this stage: by many, it is placed on the list, by others under the list. The quantity applied per acre varies much:

there are, we believe, very few, if any, who manure the whole of this crop, though there are many who manure a large portion—all varieties of manure are used. Dr. Ravenel has found sheep's dung decidedly the best, and next to it that from the stables, and then follows that from the hog-pen and cow-house. He has not tried swamp-mud, cotton seed, or any compost, but from the experiments of others, there can be no doubt but that each of these would prove highly advantageous. On a light sandy soil, Mr. Joseph Palmer, made use of swamp-mud, in what quantities, we do not recollect, but he found it fully as efficacious as cow-pen manure—it was gathered in September and used the following spring. At the "*Rocks*," it has been used for many years with great success. It has been applied to the one-half of a particular field, while the other was manured from the cow-pen, and the result has been, that, that part which was manured with swamp-mud, is now considered decidedly the best, the whole texture of the soil being changed, and rendered more productive. So beneficial has been its application, that it is contemplated to change the manures so as to apply the cow-pen to where the swamp-mud has been hitherto, and the mud to where the manure was. The change, no doubt will be highly efficacious. Mr. Palmer has also tried fowl-dung as a manure for cotton, he found the plant did not grow tall, but produced most abundantly. In using this manure, it is necessary to be extremely cautious: so powerful is it that a very small quantity is sufficient. In fact, so little is required that most persons unacquainted with its power, would be deceived as to the quantity, and by using too much injure, if not entirely destroy the crop to which it is applied. It is not one of those kinds which can be applied in large quantities with impunity, as we know from sad experience. Cotton seed has also been applied by a few planters as a manure to cotton, but in the only two experiments which we heard related, the results varied somewhat. Mr. Joseph Palmer, some years since, after preparing his land, opened a deep furrow, and filled it with cotton seed which had been exposed during the whole winter, using one hundred bushels per acre, twenty acres were so manured, and they were computed to yield at least three hundred pounds of clean cotton per acre. The whole field contained sixty acres, forty of which was not manured;

the average of the whole field was two hundred and fifty pounds, that to which the cotton seed had been applied did not grow tall, but bore astonishingly thick. The other experiment was made by Mr. James Gaillard. He applied cotton seed at the rate of a half bushel per row of one hundred and fifty feet. The cotton grew most luxuriently, but continued growing so late, that it was caught by the frost, before it had matured many of its pods, and but little was obtained from it. These are the only two experiments we could hear of with this manure, and it is certainly highly deserving of investigation, whether cotton seed would not be one of the best manures which could be applied. If the plan of planting the same crops (especially cotton) in the same fields be persevered in, and the theory of Griseuthwaite be correct, that every plant requires a specific nutriment independent of what is requisite for all others in common, then it follows, that the application of the cotton seed cannot fail under proper management, to be one of the most useful that can be applied, and if the old stalks be beaten down, and the seed be returned, the cotton wool will be all that is lost to the land, and this is perhaps more than made up for, by what is gained, from the atmosphere, by the leaves of the plant, grass, weeds, &c. To preserve the fertility of the soil, this might answer; to increase it, more may be requisite, which could be collected from other sources. Plaster of Paris has also been tried by Mr. S. G. Deveaux, in quantities of from two to two and a half bushels per acre. On some acres it was strewed in the trenches and listed on—on others it was strewed on the list, and some acres were planted with seed rolled in plaister. The product was not kept separate and weighed, but so great was the improvement, that the very row at which this manure commenced was easily distinguishable at a considerable distance. These experiments, unfortunately have not been continued, and this is to be regretted, as this manure has been found so very beneficial in the Northern States, and elsewhere, and has done more to renovate their old lands, than any other which has or could be generally used. We hope they will be repeated by Mr. Deveaux, and by other of our planters, and that they will let the results be known.

The ground being listed, the next step is bedding. This is not usually done until towards the approach of spring, when the usual preparations for planting are made. Major Samuel Porcher, and his son Thomas Porcher, however, differ with most of their neighbours, with respect to the time this should be done. By them it is commenced as early in January as their other occupations will permit, and the object they have in view, is to render the bed firm and compact before the time for planting arrives—the reason for desiring this will be stated below. The beds are extremely small, from twenty-four to thirty inches base, and not more than from six to eight inches high. Formerly large beds were much in vogue, but they have recently been abandoned, and the *very small* substituted. The reasons assigned by Major Porcher, (and we believe they are those which govern in this case) are, that in making large beds, the poor soil is mixed with that which is good, and thus deteriorates it—that they require more labour to cultivate them, as a greater surface has to be gone over by the hoe; he also thinks the plant injured by a large bed, that it does not thrive until it throws out its lateral roots, which is not done until the tap-root reaches the hard earth underneath the bed. This practice is directly at variance with that adopted on the sea-islands, where the beds are from three to four times the size of these, and the reasons assigned there, are that in large beds the roots of the plant have more room to search about for food—they are not so subject to injury from great falls of rain, nor do they suffer so much from drought. Which of these be correct we will not venture an opinion, perhaps difference of soils and situations may require the difference which exists between them. An experiment to settle this point was instituted by the late Mr. Samuel Gaillard, of upper St. John's, at the "*Rock Plantation*," with an account of which we have been politely furnished, and is as follows:—

"*Experiments upon the sizes of Cotton beds.*

The large beds would measure about 10 or 11 inches from top to base.
The common sized about 4 or 5 inches do. do.
The small beds were mere lists.

1826—Planted thirty-six rows in the following manner, the four first rows very small, the next four of moderate size, and the next four of a large size, and so on successively; these beds

were four feet apart and fifty yards long. The result was as follows:

12 small beds,.....105 lbs. of seed cotton.
12 common sized beds,.....109 do. do.
12 large beds .....115 do. do.

There was an astonishing difference in the height and bearing of the cotton until sometime in August when the difference became less perceptible. The early part of the season was very dry, no rain fell from the 5th of June to the 10th of July. First frost 20th November.

1827—The experiment of this year mislaid and not recollected.

1828—The experiment again pursued in the same manner as in 1826—result as follows:

12 Small beds,.....97 lbs. of cotton in the seed.
12 Common sized beds,.....125 lbs. do. do.
12 Large beds,.....135 lbs. do. do.

1829—The result of a similar experiment.

12 Small beds,.....61 lbs. in the seed.
12 Common sized beds,.....71 lbs. do. do.
12 Large beds,.....57 lbs. do. do.

1830—

12 Small beds,.....116 lbs. of cotton in the seed.
12 Common sized beds,.....121 lbs. do. do.
12 Large beds, ...110 lbs. do. do.

This experiment was no longer pursued."

The planting commences about the first of April, some, however, begin as early as the middle of March. A kind of dibble is used for the purpose of making the holes and marking the distances. It is nothing more than a piece of plank ten inches wide and three inches thick brought to a sharp edge, with a handle four feet long, and a small piece of wood (a lathe) running diagonally across the lower part, which being of such a length as to touch the ground when the dibble is struck on the bed, marks the spot where the next hole is to be made; the hole made by each stroke is ten inches long and three wide as top, and into this the seeds are dropt by the hand, following.

A fact was mentioned to us, and which we had abundant opportunity of verifying whilst on our visit. It is, that cotton planted either *immediately* before, during, or after a heavy fall of rain, sufficient to saturate the earth, will not come up as early as that which is planted some days after, when the excessive moisture has in some measure evapo-

rated. Cotton planted by Major Porcher on the fifth, sixth, and seventh of April, (just before a rain which lasted for three days) was very irregularly up on the twenty-fifth, whilst that planted on the 9th of April had been up a few days, and the stand pretty good; a more remarkable instance occurred at Dr. Ravenel's. A field which was planted on the fifth and sixth, was very irregularly up on the twenty-eighth, whilst that planted many days after, we believe, at least, a fortnight, was up most beautifully at this time. We saw several other fields which verified the the remark.

The hoe is almost exclusively used in working this crop. The time of giving the first hoeing is generally soon after the crop is up, in order that the soil may be loosened, and the young roots find easy progress in search of food. It is well known that early and frequent hoeings are very serviceable to plants, and that their progress is very often in proportion to the care bestowed on them in this respect. Major Porcher, however differs with his neighbours, as to the proper time for giving the first hoeing. He never permits a hoe to go into his field until after the seventeenth of April, and assigns as a reason that he has invariably observed, that there is a cool spell of weather about that period, and often frost. If the beds are compact and firm, the plants are but little injured, but if light and porous from having been worked, the cold air and frost penetrates, and the plants are seriously injured, and often killed. He has never lost a crop of cotton in its early stage, and attributes his success to following this plan invariably. It is not, however, followed by many, but on the contrary it is usual here to commence hoeing soon after the cotton is fairly up. In performing this operation, care is taken neither to increase or decrease the beds in height. The hoeing is almost invariably upwards, but the earth is not drawn to the plant, but merely to the sides of the bed, by which operation the bed is enlarged, whilst the height remains the same. Some endeavour to keep the size exactly the same throughout the season, and the reason assigned is, that no new surface being exposed; fewer grass seeds are brought within a vegetating distance, and consequently there is less to destroy at the subsequent workings, whereas, by hoeing down and then up, the reverse takes place. Major Porcher mentioned several experiments, going to prove that it took from

one-third to one-half more labour to keep the same space clean when hoed down and up, than when the same surface had been uniformly kept exposed. Mr. Joseph Palmer's plan is, when the fields are grassy, to hoe down, place the grass in the centre of his alleys, and then cover it by running the plough on each side, this is subsequently reversed, and the whole drawn up to the cotton, taking care, however, to increase the size of the beds very little.

The thinning commences with the third hoeng, when the bunches are "broken," that is, have a number of plants removed from the centre of the bunch: at the next hoeing they are thinned down to four or five, then to two, and finally, but one stalk is left at the distance of every two feet. From four to seven hoeings are given according to the season, generally five are sufficient, and all endeavour to give it the last working by the first of August. If worked later, the growth is continued too long, and, although, the plant becomes very luxuriant, yet, on this very account does not commence opening its pods until late; consequently the product is lessened by its being overtaken by frosts. If after this working grass should appear, hands are sent in when it is grown to some size, who pick it out; being generally in large tufts. It is rarely troublesome so late, and when the fields are so shaded as at this period. There is one rule adopted by Major Porcher, which ought to be more generally followed than it is. It is when the fields are tolerably free of grass to work them regularly through, but when there is much grass there, that which is cleanest is first gone over, because if that which was then, comparatively clean, should be hoed first, it would become in all probability as polluted as any, by the time it was worked in is regular course. We are, aware, that this is no novel plan, it has been acted on by many long since, but it is not so generally adopted as it ought to be.

Throughout, the whole culture is performed almost exclusively with the hoe. The plough is but little worked in this parish, and we believe, by no one is it much used in this crop. By some, the "scrapers" are employed to destroy the grass in the alleys; but even this instrument which might be rendered very efficacious, is comparatively but little used, and by many not at all.

The picking commences about the first week in September, or as soon after as from fifteen to twenty pounds can

be obtained by each hand. When the pods are opening fast, from fifty to sixty pounds are assigned to each full hand for his task. Some planters, instead of weighing their cotton, have it measured. For this purpose, a skeleton tub is made, being nothing more than a few laths nailed to hoops. A parcel of cotton is then dried, placed in this measure as light as possible, weighed and the spot marked. This measure is afterwards constantly used instead of weights, and each hand is permitted to put in the cotton he has gathered, and as light as he chooses. The advantages arising from this substitution of measuring for weighing are, that the negroes are more careful in picking, taking none but that which is fully open, and leaving all which has been spoiled by rain or other causes: and again, instead of keeping it confined in order to retain its moisture, so that it may weigh heavy, it is spread abroad to dry and frequently turned, in consequence of which, very often, but little more drying is necessary, if any at all. The plan of drying in the sun which was once so universal, is now not so generally practised on the sea-islands. The cotton there is kept as much as possible from it, during the time of picking, and afterwards is dried on scaffolds, with sheds erected over to exclude the rays of the sun. It has been ascertained that the sun exerts a prejudicial influence on the staple of the cotton, the oil is dissipated and the fibres rendered coarser.

Early in the morning before they go out to their work, each hand sorts the cotton he brought in, the evening previous, separating the stained from that which is good. The average product from unmanured land is estimated at one hundred pounds per acre, and from that which has been manured at from one hundred and thirty to one hundred and fifty per acre.

Preparation for market—The foot-gin is alone used in these parishes, and from thirty to forty weight of cotton is the labour assigned to each hand. The first process, however, is to pass the cotton through the whipper,* for

* The cotton whipper used in these parishes is made as fellows:—a frame work nine feet long and three feet wide (outside measure) is constructed—this is closed on three sides, the bottom is semi-circular and open, formed by small laths, one and a quarter inch wide and separated one and a quarter inch from each other. Through the centre passes a shaft with spokes twenty-nine inches long, and one inch diameter, placed spirally at a distance of four inches from each other. The whole frame slopes from the handle to the lower end, the heighth at the former being four feet and the latter three feet; the shaft is

the purpose of freeing it from dirt, and opening it preparatory to its being passed through the gin. After this, it is again passed through another whipper, when it is moated and packed. The course adopted by Mr. Thomas Porcher, is to have as many hands engaged in moating as there are ginners, to each of whom, forty pounds are given, the moater proceeds with his work as fast as it is ginned, the consequence of his arrangement is that as the latter has to pick out all specks and *broken seeds*, he is extremely watchful of the ginner, and will not permit him to be careless, but reports him to the overseer should he persist.

The other crops we shall notice in our next.

(*To be continued.*)

turned by a handle, or by a wheel and band. The cotton is thrown in at an opening on the top near the handle, and by the revolutions of the shaft, is opened, the dirt separated and falls through the openings at the bottom, whilst the cotton is finally thrown out at the lower end, through a spout. A moddle can be seen at our office.

PART II.

SELECTIONS.

ART. LIII.—*The Dairy.*

[FROM THE LIBRARY OF AGRICULTURAL AND HORTICULTURAL KNOWLEDGE.]

(Continued from page 442.)

III.—*The Making and Curing of Butter—Milking.*

1. Cows are generally milked but twice in twenty-four hours, morning and evening; but for the first three or four months after calving, the milk being then much more abundant, it would be better to perform this operation three times a day. It is important that the milk be drawn off clean, otherwise it will not only be less in quantity and inferior in quality, but the cow will also be dried off prematurely.

2. The milk, when brought in from the cows, should be strained through a fine hair searce or strainer, and placed in clean pans. It is a practice with many to keep the morning and evening's milk in separate pans, as the former is much superior to the latter in quality. A tin skimmer, with holes in it, is the best for taking off the cream, which is then transferred to a vessel called a cream receiver.

The period for keeping the cream previous to churning, varies from two to four days. To ensure success a certain degree of acidity seems necessary; to effect this, a little old cream, rennet, or lemon-juice is sometimes added.

4. The churn whether pump or barrel, should be made of the best well seasoned white oak; and, as cleanliness is of the first importance, great attention should be paid to the washing, drying, and airing of the churns, immediately after use otherwise they are sure to contract a sour and unwholesome smell, which must injure the quality of the butter. In the process of churning, great nicety is required; a few hasty irregular strokes or turns have been known to spoil what would otherwise, have been excellent butter.

5. The best time for making butter, according to usual practice, during the summer season, is early in the morning, before the sun has attained much power. But this, of course, depends upon contingencies on which it is impossible to calculate.—

Science, however, has reduced that to a certainty which hitherto has been a matter of doubt. Butter of the best quality can only be produced at a certain temperature. And the knowledge of this fact is of such importance, that we earnestly invite the attention of our readers to the following details, for which Mr. Ballantine obtained the highest premium offered by the Highland Society of Scotland.

"The degree of thermometrical temperature at which butter from cream can be obtained, ranges from 45 to 75 deg. of the scale of Fahrenheit; and, from the annexed experiments, it appears that the greatest quantity of butter, from a given quantity of cream, is obtained at 60 deg. and the best quality at 55 deg. in the churn, just before the butter comes; for, in the experiments made it was found that the heat rose four degrees during the operation of churning, though the temperature of the milk-house was the same. Repeated experiments, made at this degree of heat, gave butter of the finest colour and quality, the milk being completely separated from the butter, which, when washed and made up in rolls, kept for a fortnight, without acquiring either smell or taste. At 60 deg. the quantity is greater, but the quality much inferior, being soft and spongy, and giving out a considerable quantity of milk when salt was applied, which may account for the additional weight. Several experiments were made with heat up to 75 deg. the result of which, as will appear by the table, completely accounts for the great quantity of inferior butter made in the country.

"By taking high heats, on purpose to accelerate the churning, the milk not being taken from the butter, it cannot keep, either sweet or salted. When the heat exceeded 65 deg. no washing could detach the milk from the butter without the aid of salt; but when a quantity of salt was wrought well into it, and the mass allowed to stand for twenty-four hours, and then taken to a well o spring water, and repeatedly washed, the milk, by this process, was got out, and the butter re-salted in good order.

"According to Experiment No. 1, sixteen pounds and a half of butter (sixteen ounces to the pound) were obtained from sixteen Scotch pints of cream, and, from several experiments at the same heat the result was the same; that is, more butter was produced from the same quantity of cream than at any other heat, though the quality was inferior, both as to colour and texture, to the butter produced from heat, as in Experiment No. 2, which was of the very best quality, and the quantity the same as No. 2, except towards the middle of September, when an increase of about six ounces was got from the sixteen pints of cream, in consequence of the milk producing richer cream than in the summer months.

"Experiment No. 3.—The same heat was taken, but the experiment was made in a different form, and with milk from different, though the pasture was much the same. The churn was placed in the kitchen, exposed to a temperature of 60 degrees, but by removing it to an out-house, the heat was brought down to 52 deg. at four o'clock in the morning, and just as the butter was forming, the heat was found to be 56 deg. having risen four degrees. The quality was such as would ensure a ready sale in any market, at one penny or two pence per pound above what I saw in the house made at a former churning. No. 3 in the table is an average of four experiments, made at the same heat, in all of which the butter was excellent.

"Experiment No. 4.—Heat of cream, when put into the churn, 65 deg.—rose to 57 deg.—in thirty minutes butter came, but it was what is called bursting the kirn. The quantity was deficient, and the quality really bad, being white, short and bitter. Both salt and saltpetre were applied without effect, for the butter continued soft and pale. A few more experiments were made on a small scale, with heats as high as 75 degrees; and although butter was got, yet it was of such a quality as was only fit for greese butter.

"Experiment No. 5, is the several churnings, taken at 50 degrees, in which the butter was of good quality, but evidently injured by being so long under the churning process.

"From these experiments it appears, that the temperature at which butter from cream can be obtained, in the greatest quantity, is 60 deg. in the churn, just before the butter is formed, or 65 deg. when put into the churn.

"The best quality at a temperature of of 51 deg. in the cream, and 55 deg. in the churn.

"The temperature at which butter from cream can be obtained in the greatest quantity and of the best quality, in the medium of Experiments Nos. 1 and 2, or 53½ deg. of cream, and 57½ deg. in the churn, before butter comes, as appears from No. 6, which gives the result of several churnings, taken at the medium heat of Nos. 1 and 2. At this heat every advantage is gained, as to quality, and any additional quantity that may be obtained by higher heats, is only so much milk retained in the butter, which must greatly injure its quality. If the churning house is properly constructed, it is easy to gain this heat the whole season; for, when the heat of the air was 75 deg. through the day, it was only 50 deg in a thatched milk-house, at four in the morning; and when the heat is below that, with the assistance of hot water, you can bring it up to the heat wanted.

"If the churning process is then carried on with heats, as in Experiment No. 6, every advantage will be gained, as far as heat is concerned. Butter intended to be sent to the market sweet, should be carefully gathered from the milk with the hand, and

the milk gently squeezed out of it. It should then be put into cold spring water, and, after being well washed, it should be made up into rolls, with wooden flappers, and put into cold water to firm, but should not be allowed to remain longer than is necessary to firm it, as the water hurts both its flavour and colour. The salt should be well wrought into it, before it is pushed into the store kit.

Number.	*Date.*	*Scotch pints of Cream*	*Degree of heat in the Cream*	*Degree of heat when Butter came.*	*Quantity of Butter, 16oz. per lb.*	*Time of churning.*	*Weight of Cream of 16oz.*	*Heat of the air at 8 p. m.*
1	1825. June 13	16	56	60	16lb. 8oz.	1½ hours.	4lb. to pt.	56 deg.
2	1825. June 20.	16	52	56	16lb.	2 hours.	4lb. to pt.	52 deg.
3	1825. June 24.	16	52	56	16lb.	2 hours.	4lb. to pt.	52 deg.
4	1825. July 12.	16	65	67	15lb. 8oz.	30 min.	3lb. 14oz. to pint.	70 deg.
5	1825. Oct. 20.	16	50	53½	15lb 12oz	3 hours.	4lb. 1oz. to pint.	50 deg.
6	1825. Aug. 20.	16	53½	53½	16lb. 5oz.	1¼ hours.	4lb. to pt.	

"No. 1, shows the greatest quantity of butter produced by the above heats.

"No. 2. The best quality of the butter.

"No. 3. The fine flavour and quality of this butter could not be surpassed.

"No. 4. The quality soft, white, and milky.

"No. 5. Quality injured by long churning.

"No. 6. Answer to the Society's query. Quality most excellent, high in colour and flavour, and solid as wax."

6. The butter, immediately after being churned, should be thrown into fresh spring water, where it should remain for a sufficient time to make it firm; some limit it to an hour, (more or less,) according to the season of the year; and at the end of the third or fourth washing, some fine salt should be put into the water, which will raise the colour of the butter, and purge away any milk that may remain among it. Before salting, it is very essential that no milk or water be left, otherwise a strong smell and unpleasant taste will be the certain consequence. The butter thus prepared should be immediately salted, the maker exercising his own judgment in doing so. The mixing of the salt with the butter should be done in wooden dishes, after the water and milk are completely expelled. The operation concludes by weighing and making up the butter in the usual manner, either for the table or market.

7. In winter, the butter generally loses a portion of its richness, and assumes a lighter colour, in which case a small quan-

tity of annatto may be reduced to a fine powder, and mixed with the cream before it is put in the churn. The juice of the carrot and the flowers of the marigold, expressed and strained through a linen cloth, impart a similar colour, and are certainly more wholesome.

8. The milk of new-calved cows should never be set for butter until at least four days after colouring, as a small quantity of such milk will impart a disagreeable taste to the whole of the cream to which it is added. The practice of scalding cream in cold weather should also be avoided, as cream thus treated will never make good butter.

9. Turnips, carrots, &c., impart a disagreeable odour to the the milk, which may in a great degree be counteracted by a weak solution of nitre, in spring water, applied in the proportion of one small table spoonful to every two gallons, as soon as the milk comes into the dairy. It may also be removed by the following simple process:

Let the bowls, whether of lead, wood, or earthenware, be kept constantly cleaned and well scalded with boiling water before using. When the milk is brought into the dairy, to every eight quarts add one quart of boiling water; and then put the milk into the bowls to stand for cream. By keeping strictly to this practice, sweet and well-tasted butter has been made all the winter from cows house-fed upon turnips solely.

Salting and preserving Butter. — Butter should be salted and cured as soon as possible after it is made. The proportion of salt to a pound of butter is one ounce; but when it is not intended to be kept through the winter and spring, the proportion may be smaller, and regulated according to the taste of the curer. Some persons, to a pound of salt add four ounces of sugar; the salt, at all times, must be kept perfectly dry. In Ireland, the use of salt and saltpetre is recommended in the proportions of one ounce of stored rock or bay salt, and one-fifth of an ounce of saltpetre, to twenty-eight ounces of butter.

After the butter is made it will be desirable to put it down as early as convenient. The casks should be oak, ash, or lime-tree; the latter is to be preferred; the wood should be boiled for four hours previous to being made into casks, and afterwards well soaked in spring water. Whether casks or crocks are used, the greatest cleanliness should be observed. Old and new butter should never be mixed, nor should two makings; however, should there not be a sufficient quantity collected in one day to fill a package when cured, the quality of the butter may in a great measure be preserved by giving it a partial salting, and covering it over with a clean linen cloth, placing it in a cool place. But should be well pressed down, its surface covered with pure salt, and the lid put securely on to exclude the air.

In small dairies, for domestic use, the butter is pressed down in layers, on each of which pure salt is strewed; when the crock is filled it is tied down.

(*To be continued.*)

Art. LIV.—*Dissertation on the Mixture of Soils.*

[FROM THE NEW-ENGLAND FARMER.]

(Concluded from page 432.)

Beds of the most valuable peat often lie several feet below the surface. When this substance is removed from its bed, and exposed to the action of the atmosphere, it readily yields to a fermenting influence, the first requisite to its becoming a useful constituent part of soil. Peat should always be applied to soils, which tend to an excess in fermentation. At the same time that it opposes the progress of that disease in a soil, it is gradually reduced to a state of decomposition, in which it contains much food of plants. Marl, which is a very rich ingredient in a judicious application of it to soils, is also found at various distances from the surface in the sub-soil. Marl is a composition of several substances, and the nature of those substances must be carefully examined to discover on what sort of soil, a particular bed of it can be applied with the greatest effect. There is what agricultural writers call shell marl. This is a suitable application for almost any soil. It is composed chiefly of animal substances and lime, and therefore will act in any situation as a powerful stimulant. Mr. Brown, in his treatise on agriculture, says, 'It would seem that shell marl, from the qualities it possesses, promotes vegetation in all the different ways. It increases the food of plants; it communicates to the soil a power of attracting this food from the air; it enlarges the pasture of plants; and it prepares the vegetable food for entering their roots.

Shell marl is easily distinguished by the shells which always appear in it; but the similarity between earth marl and many other fossil substances, renders it difficult to distinguish them. The common test, however, will be sufficiently certain for all the purposes of the farmer. Earth, that effervesces in acids, partakes of the character of marl, and the degree of effervesence will pretty accurately show to what extent it partakes of that

character. But we must not be governed exclusively by the strength and richness of marl, in our selection of situations to apply it; we should also attend to its natural tenacity and the character of the earth about the beds which contain it. If it be silicious earth or coarse gravel, then the marl belongs to cold and clayey soils. If it be a compact and clayey substance, then the marl should be placed on loose and warm soils. When marl is properly applied, almost any desired degree of richness can be produced by it. No other manure will be necessary in the first rotation of crops. But the same cautions are important in the use of this substance, which are so necessary to be observed in the application of lime. Both marl and lime stimulate the soil to unusual exertion, and if nothing else for a long succession of years be applied, there will follow debility, and the land will be reduced to barrenness. This effect is to be feared only in the imprudent and exclusive use of these substances; under prudent management they are powerful and highly important agents. In a correct rotation of cropping and with occasional supplies of other manures, neither marl nor lime will ever prove injurious.

By digging deep into the earth, all the mineral substances are found which may impart a new texture to soils, or by acting on the animal and vegetable matter contained in them, in the decomposition and solution of it, will assist in furnishing food for plants. The fossils, which, mixed with soils, will increase the richness and fertility of them, are very numerous, and no more than imperfectly understood. Every extended advance of the former towards the interior regions of the earth, tends to increase our knowledge of the mineral kingdom; as it is likely to furnish the chemist with some new subject of analysis. Excavations may sometimes be profitably made in the earth, for the sole purpose of mixing the materials obtained, with the different soils on the farm. Experiments of this sort, if they should not result in any addition to the stock of general knowledge, would certainly increase local knowledge, and would impart more correct ideas of the constituent parts of that portion of the earth in our possession, and under our immediate control. The substances taken out of the earth in the various operations of society, should always be carefully examined, and experiments made with them. In deep recesses of the earth are hidden many precious treasures, and every generation of men have a part to perform in the development of them.

We descend far into the earth for the fossil which now warms so many of our houses, and on which we depend for heat in so many of our works of art. There, also, we can find the choisest substances to enrich our land. All former researches of this nature have been followed with great reward, and there can be no want of motives to perseverance in the work. The preced-

ing remarks have been chiefly confined to substances, which, at the same time they improve the texture of the soils, act on them as manures, either by their stimulating influence, or by imparting the food of plants. Such substances form the principal resources for enriching land, in the progress of improvement on a farm. But there is also a mixture necessary as the foundation of improvement in many situations. There are sand barrens and pure clays which produce nothing, and manures applied in the common form and measure, will have scarcely any influence. A radical defect exists, and a remedy must first be provided for that, or all our applications will be as ineffectual and useless, as the administration of the most nourishing food to a sick man. A soil chiefly composed of sand is too porous; it does not retain enough of moisture; it admits light and heat so freely, as to cause a very rapid dissolution of all the vegetable matters that happen to be incorporated with it. We call it hungry soil, and say manure does it no good. We conclude manure does no good, because it never lasts till any crop is matured. Its force is all expended, like that of a prodigal son, before the highest energies have ever been demanded.

This soil we should not attempt to cure with mere palliatives; we should engage at once in the work changing, totally changing, the texture of it. Many of the substances already enumerated can be applied in such portions, as will greatly alter the character of a sandy soil. Alluvion, that has been collected by streams passing over long beds of tenacious earth, with a portion of peat and other vegetable matters, may possibly prove sufficient to remedy all the defects of it. But there is a more expeditious and much cheaper method of accomplishing the object. Clay, extensive beds of which are generally found in the neighborhood of sandy soils, if mixed with them in large quantities will immediately and permanently change their character. The particles of these opposite sorts of earth will mingle in such a manner, that dews and rain will be well retained in the soil, and light and heat will be admitted in degrees sufficient to decompose vegetable substances, as fast as the growing plants will require nourishment from them; but not so fast as before, when there was so rapid a solution that plants were always left destitute of food in an unmatured state.

The clay pit should always be the first resort in the preparation of sandy barrens, to become fruitful fields. No definite rules are necessary in relation to the quantity of clay that should be applied; the eye and the hand will determine with sufficient accuracy enough, when the clay is laid on in sufficient portions to retain moisture, which is the first and principal object to be accomplished. Clay, in an unmixed state, is represented as the most unfriendly to vegetation of any of the primitive earths. All the properties of it, with the exception of its power to retain

moisture, are said to counteract the vegetative principle. And some writers have endeavoured to discourage, wholly, the use and application of it as an ingredient in soils. In poetic style it has been said,

> "He that carts sand makes land,
> He that carts clay flings his land away."

This index must have been originated in abstract views of the properties of clay, and without any attention to the defects of soils composed chiefly of the opposite earth. Clay, in its natural state, retains too much water for the health and vigour of vegetation; it is too compact for the roots of plants to extend themselves and collect nourishment; it powerfully counteracts the process of fermentation, and plants growing in it often suffers in want of the necessary and proper food. Now all these qualities render it a highly important application on sand. Water passes too soon through sand, and is not compact enough to give shelter, firmness, and the necessary protection to the roots of plants. Sand powerfully promotes the putrefactive process and often completes it in all the vegetable matter it contains, long before the time of maturity in plants.

In the language of Agricola, sand "suffers water to filter easily through its pores; clay is highly retentive of water; sand promotes putrefaction clay delays it; sand suffers the gases set at liberty in putrefaction, to escape; clay absorbs the gases; sand opens an unobstructed path for the extension of the roots of vegetables, clay gives them firmness, in their course and supplies the moisture, which sustains them. In fine, the two may be classed among the contending elements, of which a union heightens their common virtues and subdues their defects."

Clay and sand are the principal earthy ingredients in all soils. The operations of nature have combined the opposite qualities of them in such a variety of ways, as to produce that diversified texture of soil which is found in every country. It must be absurd for us to think the course of nature, in this respect, cannot be usefully imitated by art; that where sand is found in its simple state, it cannot be reduced by the admixture of clay to a good vegetable mould. We cannot easily engage in any work more certainly useful, or that will ultimately prove more productive. The uphill to be encountered in this sort of labour should discourage no man; every step brings gain and brightens the prospect. In these operations the valleys are raised and the hills are beautified. It is work not necessary to be repeated every year or in any short succession of years, but when once well done it is done for ages.

The utility of mixing sand with clayey soil is seldom questioned. This is generally down hill work, and sand is carried in much larger portions on to clay, than clay is ever carried on

to sand. Hence, probably the notion that it is good to cart sand but bad to cart clay. The effects must be reciprocal and would always so appear, if the work in both cases were equally well performed. Doctrines which demand few laborious duties gain an easy currency, whether they relate to philosophy, morals, or religion; they are likely to grow too popular and to be carried into great extremes. This has been the fact in the estimates made of the uses and in the application of sand; the results have been so manifestly and greatly beneficial, when properly used, the conclusion has been too hastily drawn that its influence must every where be salutary, and sometimes it has been used like the good woman's "sugar, in every thing." The common notion that sand is a suitable application for low and moist lands, is correct only in relation to soils of a particular texture. Many of the low lands have a very loose and spongy soil; there may be defects in them, but sand cannot be the proper remedy. Some low and moist lands will be found, on examination, composed chiefly of sand to the depth of several feet. Mix sand with sand to any extent, and the product can be only sand. Sand-hills are treasures, but like every other sort of earthly treasure, valuable only in the proper use of them. There can be no more tendency in sand to stimulate a soil of similar quality to renewed exertion, than there is in increasing wealth to stimulate the miser to deeds of generosity. The proper uses of sand in agriculture are its application to tenacious soils, for the purpose of opening and destroying the rigidity of them; and to clay, for the purpose of reducing it to a state in which the roots of plants can travel and find nourishment. Sand should always be used in compliance with the rule of mixing different qualities.

In closing a discussion of this sort, it may not be deemed strictly proper to present even a summary view of arguments, which, on a different occasion, might be used in persuading farmers to an early and persevering engagement in the work of mixing soils. It seems to be the business of this discourse to describe useful courses, rather than urge the pursuit. It may, however, be allowable to direct attention to the growing importance of the subject we have been considering, in language used about forty years ago, by the late lamented Dr. Mitchell:

"Hitherto," said that accurate observer and enlightened friend of progressive improvement, "Hitherto the American husbandman has cultivated a soil, enriched for ages by the yearly addition of a fresh stratum of mould. From the first existence of vegetation upon the dry land, decayed plants have continually furnished a supply of manure, which the winds and the rains have liberally spread abroad. As the supply was annually greater than the consumption, the earth, unexhausted by its produc-

tions, increased in fertility. The thick layer of vegetable mould which covered the face of the earth, was a storehouse of food for plants, and their quantity was greatly increased by the conversion of wood into ashes, by clearing. It is not wonderful then, that for some years, newly cleared settlements should abound in produce and require little more labor, than that of ploughing and reaping; for during this period, the provision is wasting which for centuries had been accumulating. But the time will come, and indeed in many places now is, when the land, repeatedly wounded by the plough-share and exhausted of its richness, shall be too weak of itself to make plants grow with their former luxuriance.

"This may be called THE ERA OF SYSTEMATIC AGRICULTURE, when man, taking the earth from nature's hand, bare of manure is so to manage and dispose it artificially, that it shall yield first a subsistence and then an overplus to grow wealthy upon. How far art may go in this species of improvement is yet unknown, as the *ultimatum of fertility* has never yet been reached. As far as experiments have been made, we find the earth liberally affording its produce in proportion to the labour and skill bestowed in its tillage; and as the ingenuity and invention of man may increase to an unknown and incredible degree, so may the improvements and management of husbandry keep pace therewith, until the most fruitful spot that now exists may produce a tenfold quantity, and the land which now supports an hundred men, give equal enjoyment to a thousand."

ART. LV.—*The General Management of the Horse.*

[FROM THE LIBRARY OF USEFUL KNOWLEDGE.]

This is a most important part of our subject, even as it regards the farmer, although there are comparatively few glaring errors in the treatment of the agricultural horse: but it comes more especially home to the gentleman, who is too often and too implicitly under the guidance of an idle, and ignorant, and designing groom.

We will arrange the most important points of general management under the following heads:

Air.—A supply of pure air is necessary to the existence and health of man and beast. In some agricultural stables, the sup-

ply, if not too great, is carelessly and injudiciously admitted; for the wind blows in from every quarter, and beats directly upon the animal. When he has been well seasoned to this, it seems to do him little harm, except that he has an unthrifty coat, and is out of condition. The common error, however, is to exclude as much as possible every breath of air, and to have the atmosphere of the stable, hot, contaminated, and unwholesome. The effect of several horses being shut up in the same stable is to render the air unpleasantly hot. A person coming from without cannot breathe it many minutes without profuse perspiration. The horse stands hour after hour in it, and somestimes clothed; and then his covering is suddenly stripped off, and he is led into the open air, the temperature of which is thirty or forty degrees below that of the stable. Putting the humanity of the thing for a moment out of the question, we ask, must not the animal, thus unnaturally and absurdly treated, be subject to rhumatism, catarrh, and inflammation of the lungs? It has been replied, that the horse keeps himself warm by exercise while he is thus exposed, and that a man, using strong exertion, cares little about the quantity of clothing upon him. Is the horse constantly in motion after his great coat and all his body clothes have been stripped from him, and he has been turned out naked, when the mercury in the thermometer is below the freezing point? Does he not often stand, hour after hour, in the road or the street, while his owner is warming himself within, and this perhaps after every pore has been opened by a brushing gallop; and his susceptibility to the painful and the injurious influence of cold has been excited to the utmost?

It is not so generally known as it ought to be, that the return to a hot stable is quite as dangerous as the change from the heated atmosphere to a cold and biting air. Many a horse, that has travelled without harm over a bleak country, has been suddenly seized with inflammation and fever when he has, immediately at the end of his journey, been surrounded with heated and foul air. It is the sudden change of temperature, whether from heat to cold, or from cold to heat, that does the mischief, and yearly destroys a multitude of horses.

The stable should be as large, compared with the number of horses which it is destined to contain, as circumstances will allow. A stable for six horses should not be less than forty feet in length, and thirteen or fourteen feet wide. If there be no loft above, the inside of the roof should always be plastered, to prevent direct currents of air and occasional droppings from broken tiles; and the heated and foul air should escape, and cool and pure air be admitted, by elevation of the central tiles; or by large tubes carried through the roof with caps off a little above them to prevent the beating in of the rain; or by gratings placed high up in the walls. These latter apertures should be as far above the

horses as they can conveniently be placed, by which means all injurious draught will be prevented.

If there is a loft above the stable, the ceiling should be plastered in order to prevent the foul air from penetrating to the hay above, and injuring both its taste and its wholesomeness; and no openings should be allowed above the racks, through which the hay may be thrown into the rack, for they also will permit the foul air to ascend to the provender, and, in the act of filling the rack, and while the horse is eagerly gazing upward for his food, many a grass-seed has fallen into his eye, and produced considerable inflammation; while at other times, when the careless groom has left open the trap-door, a stream of cold air beats down on the head of the horse.

The stable with a loft over it should never be less than twelve feet high, and proper ventilation should be secured either by tubes carried up through the loft to the roof, or by gratings close to the ceiling. These gratings or openings should be enlarged or contracted by means of a covering or shutter, so that during spring, summer, and autumn, the stable should possess nearly the same temperature with the open air, and, in winter, a temperature not more than ten degrees above that of the external atmosphere. A hot stable has, in the mind of the groom, been long connected with a glossy coat. The latter, it is thought, cannot be attained without the former. To this we should reply that, in winter, a thin, glossy coat is not desirable. Nature gives to every animal a warmer clothing when the cold weather approaches. The horse acquires a thicker and a lengthened coat, in order to defend him from the surrounding cold. Man puts on an additional and a warmer covering, and his comfort is increased and his health preserved by it. He who knows any thing of the horse, or cares any thing for his enjoyment, will not object to a coat a little longer and a little roughened, when the wintry winds blow bleak. The coat, however, need not be so long as to be unsightly; and warm clothing, even in a cool stable, will, with plenty of honest grooming, keep the hair sufficiently smooth and glossy to satisfy the most fastidious. The over-heated air of a close stable saves much of this grooming, and therefore the idle attendant unscrupulously sacrifices the health and safety of the horse.

If the stable is close, the air will not only be hot, but foul. The breathing of every animal contaminates it; and when, in the course of the night, with every aperture, even the key-hole, stopped, it passes again and again through the lungs, the blood cannot undergo its proper and healthy change; digestion cannot be so perfectly performed, and all the functions of life are injured. Let the owner of the valuable horse think of his passing twenty or twenty-two out of the twenty-four hours in this debilitating atmosphere. Nature does wonders in enabling every animal to

accommodate itself to the situation in which it is placed, and the horse that lives in the stable-oven suffers less from it than would scarcely be conceived possible; but he does not, and cannot, possess the power and the hardihood which he would acquire under other circumstances.

The air of the improperly close stable is still further contaminated by the urine and dung, which rapidly ferment in the heat, and give out stimulating and unwholesome vapours. When a person first enters an ill-managed stable, and especially early in the morning, he is annoyed not only by the heat of the confined air, but by a pungent smell, resembling heartshorn; and can he wonder at the inflammation of the eyes, and the chronic enough, and the inflammation of the lungs, with which the animal, who has been shut up in this vitiated atmosphere all night, is often attacked; or if glanders and farcy should occasionally break out in such stables? It has been ascertained by chemical experiment, that the urine of the horse contains in it an exceedingly large quantity of hartshorn; and not only so, but that, influenced by the heat of a crowded stable, and possibly by other decompositions that are going forward at the same time, this ammoniacal vapour begins to be rapidly given out almost immediately after the urine is voided.

When disease begins to appear among the inhabitants of these ill-ventilated places, is it wonderful that it should rapidly spread among them, and that the plague-spot should be, as it were, placed on the door of such a stable? When distemper appears in spring or in autumn, it is in very many cases to be traced first of all to such a pest-house. It is peculiarly fatal there. The horses belonging to a small establishment, and rationally treated, have it comparatively seldom, or have it lightly; but, among the inmates of a crowded stable, it is sure to display itself, and there it is most of all fatal. The experience of every veterinary surgeon, and of every large proprietor of horses, will corroborate this statement. Agriculturists should bring to their stables the common sense which directs them in the usual concerns of life; and should begin, when their pleasures and their property are so much at stake, to assume that authority, and to enforce that obedience, to the lack of which is to be attributed the greater part of bad stable-management and horse-disease. Of nothing are we more certain, than that the majority of the maladies of the horse, and those of the worst and most fatal character, are directly or indirectly to be attributed to the unnatural heat of the stable, and the sudden change of the animal from a high to a low, or from a low to a high temperature.

(To be continued.)

Art. LVI.—*On the Management of Plants in Rooms.*

[FROM THE HORTICULTURAL REGISTER.]

To treat on the proper management of plants in houses, is a subject attended with considerable difficulty, every genus requiring some variation both in soil, water, and general treatment. If the room where the plants are intended to be placed, is dark and close, but few will ever thrive in it; if on the contrary, it is light and airy, with the windows in a suitable aspect to receive the sun, plants will do nearly as well as in a greenhouse; but if they are observed to suffer, the effects may generally be traced to one of the four following causes: want of proper light and air—injudicious watering—filthiness collected on the leaves—or, in being potted in unsuitable soil.

1st. *Want of proper light and air*,—is perhaps the most essential point of any to be considered; for however well all other requisites are attended to, a deficiency of either of these, will cause the plants to grow weak and sickly. Let them always be placed as near the light as they can conveniently stand, and receive as much air as can be admitted, when the weather will allow—indeed those persons who have no other conveniency than the house to keep them in, will find that they derive immense advantage from being, during fine weather, in spring and autumn, turned out of doors in the evening and taken in again in the morning—the night-dews contributing greatly to their health and vigour.

2nd. *Injudicious watering*,—does more injury to plants in rooms, than many persons imagine. To prevent the soil ever having a dry appearance, is an object of importance in the estimation of very many, they therefore water to such an excess, that the mould becomes sodden, and the roots consequently perish. Others, to avoid this evil, run exactly into the opposite extreme, and scarcely give sufficient to sustain life. This, however, is by no means so common a practice as that of giving too much; for in general, if any thing appears to be the matter with the plants, large doses of water are immediately resorted to, and if recovery is not speedy, this nostrum is again administered, with but little doubt of its infallible restorative powers: but such persons, like an unskilful physician who gluts the weakly stomach of his patient, only hasten on, what they are trying to prevent. This overplus of water will show its bad effects by a very dark colour and flabby disposition of the leaves; and if the plant receives too little, the leaves will turn yellow, and eventually die.

The best plan is, to always allow the soil in the pot to have the appearance to dryness, (but never sufficient to make the plant flag,) before a supply of water is given, which should then be

pretty copious, but always empty it out of the pan or feeder in which the pot stands, as soon as the soil is properly drained. The water used for the purpose, ought always to be made about the same temperature as the room in which the plants grow—never use it fresh from the pump—either let it stand in a warm room all night, or take off the chill by adding a little warm water to it, or the growth of the plants will be much checked.

3rd. *Filthiness collected on leaves*,— may either arise from insects, or dust, the former may be speedily remedied, by placing the plants under a hand glass, or any thing that is convenient, and burning some tobacco until they become well enveloped in the smoke; and the latter, may be removed by occasionally washing them on the head with pure water, either by means of a syringe, the rose of a watering-pan, or with a sponge, when the filth still adheres.

4th. *Being potted in unsuited soils*,—is by far the most difficult part of the business to rectify, for no certain line can be drawn, unless each genus was treated on separately; however as this cannot be done in a paper like the present, a few general remarks, which, perhaps, with some little exceptions, may be found to be pretty correct, must suffice.

All plants whose branches are fragile or slender, and roots of a fine thready, fibrous texture, with general habits like the *Ericæ*, as *Diósma*, *Andersònia*, *Epàcris*, &c. will require the same soil, (peat earth) and very similar treatment to Cape Heaths. Those whose wood and general habits partially differ, and whose roots are of a strong texture, as *Acàcia*, *Ardísia*, *Stenocárpus*, *Tetrathíca*, *Tristànea*, &c. will require a portion of sandy loam, in many cases about equal parts; and where the habits, &c. differ materially from the Heath, only a small portion of peat earth will be required, and a compost may be made a little rich, by the addition of well rotted dung, or a similar soil to that prescribed for *Pelargòniums*. Almost all Cape and other bulbs, as *Sparáxis*, *Ixia*, *Gladiòlus*, *Tritònia*, &c. thrive best in light rich sandy loam, without any mixture of peat. Shrubby and herbaceous plants, with luxuriant roots and branches, as several species of *Myrtus*, *Jasmìnum*, *Hibiscus*, *Hermánnia*, *Heliotròpium*, &c. require rich loam, lightened with leaf soil, without any portion of peat. Plants with powerful roots, and but slender heads, as *Veronica*, *Senècio*, *Scutellària*, *Ruéllia*, *Maurándia*, &c. require a light sandy soil, mixed with a small portion of leaf mould and very rotten dung. At the time of potting, always lay plenty of broken potsherds at the bottom of each pot, to give a good drainage.

It will be seen that these directions do not allude to either Orchideous, Succulent, or Aquatic plants.

Many of the *Orchídeæ* are parasitical, and require a portion of decayed wood mixing with the soil; others grow in damp

moss—but these being chiefly stove plants, they will not flourish in a room: there are several genera however, that do very well both in the green-house, and in rooms, as *Arethùsa*, *Calopògon*, *Dendròbrium*, *Ophrys*, &c. the soil suitable for these, is a mixture of about equal parts of light sandy loam and peat; very little, or no water, must be given when they are not in a growing state.

Succulent plants, of all descriptions, require very little water, and in general are very easily managed in rooms; many of them thrive in a mixture of sandy soil and lime rubbish, as *Alòe*, *Cacàlia*, *Cáctus*, *Aizòon*, &c. others grow well in a mixture of peat and loam, as *Còris*, *Cotylèdon*, *Messembryánthemum*, &c.

Aquatic plants, as *Villàrsia*, *Actinocârpus*, &c. generally do well in a mixture of peat and loam, and require to be constantly kept in a wet state; indeed the best way is to place the pot in a deep pan or feeder, which should always be kept full of water.

Bulbs of most sorts, flourish in rooms, with less care than most other kinds of plants.

If the above precautions be attended to, plants may be brought to nearly, if not altogether, as much perfection as in a green-house.

JOSEPH PAXTON.

ART. LVII.—*On the Cultivation of Turnips.*

[FROM THE AMERICAN FARMER.]

After fifteen year's experience, I recommend the following practice, which, if carefully followed, may be made a certain, and not an uncertain crop—as is mostly asserted.

The land suited to this crop ought not to be rich but of a medium fertility, and pulverized by repeated ploughings and harrowing, until very fine; as near the consistency of pulverized virgin soil of new land as possible, and the turnip crop will very suitably succeed all early spring crops, such as potatoes, peas, radishes, beans, and clover after the first mowing, and will do without manure, provided the four first enumerated have been manured in the spring.

Manure.—A small dressing of manure is necessary, say ten ox cart loads to the acre, of ashes or old cold manure, such as yard shovelings, &c. unfermented manures will spoil the crop by making it run to *top*, rendering the root hot and spikey.

Seed and its preparation.—This is one of the most important parts to be attended to; without true good seed, all the other labour is lost. I am frequently offered seed by the bushel, which is acknowledged to be saved from the refuse turnips, which, if one is suffered to go to seed among twenty good ones, will spoil the whole. With such seed it would be as impossible to raise good turnips, as it would be from radish seed.

In order to hasten vegetation, and by that means escape the ravages of the fly, is best to soak the seed in rain water twenty-four hours: but if wanted sooner a few minutes in warm water will do. It is strongly recommended to soak the seed in lamp oil, which is said to impart a disagreeable flavour to the seed plant, which saves it from the fly. After soaking the seed, it ought to be rolled in plaster, or ashes, to dry them; and for sowing broadcast, I mix three half pints of seed with a bushel of the mixture to the acre; but those who have Bennett's drill may sow the naked seed in rows about twelve inches apart, by closing every other slide, which will save much time in hoeing.

Time of Sowing.—In the neighbourhood of Baltimore, if the turnip seed can be got up quick, it will do to sow as late as the 25th of August, for table use; and for stock, it would be well to sow from the 25th of July to the 10th of August. Two weeks later will do on the tide water and in old Virginia; the ground being well prepared, the manure spread when necessary, once ploughing, and then immediately give the ploughed ground one stroke with the harrow; then sow the seed while the ground is damp, and give it one stroke with the harrow, and the plants will soon appear. After they are up, should the fly be destructive roll them with a roller. As it is apt to be dry at this season of the year, it is best to sow a little before or soon after a rain, to get the plants up; otherwise the seed often perishes; but sowing on fresh ploughed ground is a great advantage.

Hoeing, &c.—After the plants are up and the largest leaf has grown as large as a cent, run the harrow through them, which breaks the crust, buries the young weeds, and moulds the plants; and from the half pints of seed, if the fly has not been destructive, there will be plenty of plants to admit of the harrow being run each way, which puts the ground in fine order among the plants: then commence with the all-important work of hoeing, without which all the other work will be nearly lost. Each hand must take about fifty-five feet wide and use the hoe actively, and single out the plants as near twelve inches apart as can be done by the eye. This is a tedious operation; but four or five hands, sticking close to it, will soon learn to do the work quick, and get over a large piece of ground in a day; and after it is done, there will be one single plant to each foot of ground, instead of a dozen to the foot in some places, and only one to the yard in

others, as is the case when the seed is sown thin, and left without hoeing or thinning; in consequence, in one case they will be too thick to grow, and in the other will not grow for want of culture. The white flat or white Norfolk is the best kind for early use, and the ruta baga, and yellow bullock, for late use. Either of these ought to be sowed earlier than the above—the first a month, and the latter one or two weeks. The white stone and tankard turnip, are good kinds, particularly the latter, as it grows to a great size and is sweet.

ROBERT SINCLAIR.

ART. LVIII.—*Sea-Kale—Cramb maratima.*

[FROM THE GENESEE FARMER.]

Although much has been said in commendation of this plant as an early delicacy for the table, I am doubtful whether it will be much cultivated, except by gentlemen who employ professional gardeners. The labour required to produce it early, and in an edible state, is out of the routine of common gardening, and such as farmers will not be apt to bestow upon it. Nor do I think it equal to asparagus, for which it is recommended as a substitute, nor earlier, unless forced. And when forced, great circumspection is necessary in regulating the heat—as a temperature of 60° is hurtful, while it will not grow in one so low as 50°.

Sea-Kale is a hardy perennial, resembling very much the cabbage family. The young sprouts, when grown to the length of three to six inches, are the parts principally used. But to render them valuable for this purpose, it is necessary they should be blanched, which is done by a cone of earth over each plant, or covering them early in the spring, with an earthern pot or tight vessel, so as to exclude them from the light and air. The sprouts are cut without injuring the crown, and cooked and dressed like asparagus or cauliflowers. New crops succeed.

The natural soil of the sea-kale is beach sand, with very little vegetable matter in its composition, and epicures say its flavour deteriorates in proportion to the increased fertility of the soil. It is therefore most at home in a sand soil. It is propagated by seeds, sown in April, or by sets from roots embracing a couple of joints. The proper distance for the plants is two feet. I think the best form of planting is in beds of four feet breadth, which will admit two rows; and the best method of managing, is to cover the bed in autumn, first, with a coat of leaves and garden litter, and then with three or four inches of long coarse manure;

which by repelling frost induces an earlier growth, and serves to blanch the sprouts. The shoots being strong, will raise the incumbent litter; and when of sufficient length, the crop may be readily taken. If intended to blanch with earth, this should be drawn round the plants in autumn, and covered with long dung, which last may be removed when the ground no longer freezes. When forced, the plants are covered with pots or boxes, and these with enough fresh horse manure to generate a heat of about 55 degrees. J. B.

Art. LIX.—*On the Cultivation of Rhubarb.*

[FROM THE HORTICULTURAL REGISTER.]

I have for a great many years cultivated Rhubarb in such a way as to excite the admiration of all who have witnessed its luxuriance. The long continued abundance of stalks which it affords have induced many persons to cultivate it in the same manner as myself.

Rhubarb requires, for the perfection of its growth, as rich a bed as asparagus. The practice I adopt, is to appropriate a square yard of soil to each plant—to remove a cubic yard of earth—to fill up the pit thus made with well-rotted stable manure, treading it closely down—to cover the same with a mound of earth, consisting of the soil which has been removed—and to place a single offset of rhubarb in the centre of it: the crown of the offset (which requires to have very little root attached to it) should be two or three inches below the surface. The business should be performed very early in the year; and if severe weather supervene, a covering of raw stable manure should be laid over the mound. In the course of the first season (during which none of its leaves should be plucked)* the roots will shoot down through the soil into the manure below; and it will for many years afterwards, yield a large supply of stalks during the spring and summer months, of dimensions far beyond those which are usually seen.

The sort most worthy of culture is, I think, that with the pointed leaf; the origin of which, as it may not be generally known, and as I discovered it accidentally, I will here mention. Some seeds of Turkey rhubarb having been saved for a friend's use, to his great surprise, produced when sown, none but the plants here referred to. The mystery, however, was soon explained; the Turkey rhubarb grew in the immediate vicinity of a bed of the

* Cutting the stalks makes them bleed more than plucking.

common round-leaved rhubarb, and both sorts had been suffered to seed that year. The pointed-leaved rhubarb is therefore the joint produce of those two varieties. Cultivated in the manner here recommended, the finest leaves will measure from three to four feet across, and the girth of the stalks be from four to five inches. In default of rotten dung, raw manure proportionally increased in height, may be employed; but in this case the superior earliness of its growth, from its lying over a small hot-bed, will stongly tempt the proprietor to pluck his rhubarb the first season.

EDWARD BEVAN.

Ferry Side, (Eng.) Feb. 10, 1832.

ART. LX.—*An improvement in the process of making warm pressed Castor Oil from Castor Beans, invented or discovered by* TIMOTHY PHARO, *of Tuckerton, New-Jersey.*

[FROM THE JOURNAL OF THE FRANKLIN INSTITUTE.]

Specification.—A kiln built of bricks, about five by six feet square, and four feet six inches high, is to be erected, and to be covered with tin or sheet iron, supported by small iron bars across the top. A wooden frame, from four to six inches deep, is placed on the edges of the top of the kiln, to confine the beans on the tin floor, while warming. A large sized iron stove is to be inclosed in the kiln, with the stove door on a line with one end of the kiln, for the purpose of keeping up the fire, to raise the proper heat. At the opposite end of the kiln, a small iron door is hung, for the purpose of opening and shutting occasionally, to graduate the heat.

When preparing to press the oil from the beans, the beans are to be placed upon the tin or sheet iron floor above described, where, by means of the heat raised by the fire kept up in the stove, the beans are warmed to any degree the manufacturer deems proper, and are thence removed into the iron churn to be pressed with an iron screw, propelled by horse, steam, or water power.

The above described process of procuring the oil from the beans, is new and to be preferred; because,

1st. The beans are more expeditiously warmed, and saves the expense of the labour of one hand.

2nd. All danger of scorching them is avoided, and thereby the oil is saved from any disagreeable taste, and procured in the utmost purity.

3d. The beans can be properly warmed and dried for pressing, even when in a damp state, which cannot be done by a cylinder.

TIMOTHY PHARO.

PART III.

MISCELLANEOUS INTELLIGENCE.

Horticultural Exhibition.—At the September exhibition of the Sheffield Horticultural Society, the room was splendidly decorated, "with Dahlias placed on wire frames in the form of the king's arms, a star and other devices." A Prince of Whale's feathers was presented by Mr. Levick, consisting of "*six thousand flowers of six hundred different shades*"—"about 3000 persons honoured the exhibition with their company."

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Large Apple Tree.—There is growing at Doverage, (Eng.) an apple tree 40 years old, which is thus described: "The length from one extremity to the other, is ninety-nine feet, and it increases annually from two to three feet. Since I have had the management of it (which is eight years,) it has grown in length twenty feet; it is not more than six feet in height, and the circumference of the stem about four feet. It is an enormous bearer, and an excellent fruit, but more adapted for the kitchen than for eating, as it grows to a large size. Another very remarkable feature, which I must not omit, is, that on one side of the tree, three branches invariably bear fruit only on alternate seasons; so that the branch bearing the present year, will next season be destitute of fruit, and in the same manner, the branches bearing next year, will rest the year following."

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Melons.—The Island Malomacca, which is one of the seven Isles lying in the front of Venice, is justly styled the "Garden of Venice;" its Melons are in high repute, and seldom find their way beyond the tables of the affluent. We instance them, however, on account of a singular feature which marks their advent to maturity. This takes place, almost without exception, between eleven and twelve at noon, and is announced by an emission of a peculiarly balsamic odour, of which no trace previously existed. The fruit must be instantly gathered, and removed to some cool spot; otherwise it loses its taste and perfume in a few hours.—*Hort. Reg.*

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Planting.—Among other instanees of successful planting, "Colonel Johnes of Hafod, was offered £100,000, for woods he had planted for his amusement." There was wisdom in the thrifty advice of the Scot to his son,—Be aye sticking in a bit tree; it grows while you sleep!"—*Hort. Reg.*

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Payta Cotton.—The following extract, is from a letter from Mr. Philo White, to Mr. G. B. Smith, accompanying several parcels of seed, it is dated, Valparaiso, Chili, 20th April, 1832.

"The *cotton* in question does indeed, grow on what a lively fancy might readily picture as "trees,"—but which I would rather call *shrubs*, about the size of a rank growth of Jamestown-weed,—it is, too, a *perennial* plant yielding cotton, five or six years in succession.—But it *is not*, and I am inclined to think *cannot* be produced, *by any system of culture*, as abundantly and cheaply as the common upland cotton of our country. The best of it is seldom of a superior staple to our prime uplands: yet it can scarcely ever be purchased

in the seed, where produced, at a less price than four dollars, and frequently sells as high as six and seven dollars the quintal—its loss in ginning, being from 60 to 70 per cent. It is found in nearly all parts of Peru, Bolivia, and the Pacific coast of Columbia; but as it does not thrive in a higher latitude than 24 or 25° South, I doubt its capability to resist even our Carolina winters; yet still I should be gratified to see an attempt made to acclimate it in the United States. I shall endeavor during my next temporary sojourn in Peru, to collect other facts in relation to this really valuable plant,—such as its peculiar characteristics, mode of cultivation, &c. &c.; and will let you hear from me again on the subject, should my inquiries reault in develoeing any thing worthy your attention."

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To retard the flowering of Roses.—The nobility and gentry who remain from their country seats till late in the summer, are generally prevented from seeing this class of flowering shrubs, in perfection, but the following practice causing them to blow three or four weeks later than when grown in the usual manner, well merits attention from those persons who are desirous of having roses to bloom as late as August and September.

The border in which the shrubs are planted, is manured with well-rotted cow-dung, about the first week in February. The shrubs are not pruned during the autumn or the early part of winter, but remain untouched till the buds have pushed, some of them half an inch long; the shoots are then shortened below where the buds have pushed. The shortening the shoots so late in the spring does not in the least weaken the shrubs, they blossom as vigorously and as freely as in the usual mode of treatment.

When desirable to have the blooming season prolonged, a portion of the roses cut, as is here des ribed, while the remainder are treated in the usual way, will produce the desired end. J. Hayward.—*Hort. Reg.*

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Extraordinary Oats.—In the field of Hornsea, near Hull, during the late harvest, an ear of oats, of the Tartarian sort, of most extraordinary dimensions, was gathered. The stem was within two inches of six feet in height, and in circumference, at one of the thickest joints, upwards of three quarters of an inch. The ear was fifteen inches in length, and contained 132 grains. This plant was gathered nearly at random, and many others were to be seen equally as fine.—*Ibid.*

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Hollyhocks.—I has been discovered that the Hollyhock, (*Althœa rosea*) is an excellent substitute for flax. Several individuals have embarked in the manufacture of it, and at present, it holds out every prospect of fully answering their highest expectations.—*Ibid.*

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Ploughing and Hoeing.—The utility of frequently ploughing and hoeing has been long known to practical agriculturists and gardeners. Ground often stirred with the plough or hoe in a drought will suffer far less than that not moved.

The reason of this effect I apprehend is not generally understood. It is sometimes said, that the destruction of the grass and weeds leaves more moisture for the corn or other vegetables. This, no doubt, is true—but it is not the sole or chief cause of the advantage of moving the ground in dry weather. Let any one turn up the soil in his field or garden in a drought succeeding wet weather, and he will see innumerable holes or channels leading from the surface deep into the earth. These channels are made by worms descending into the ground in search of moisture or for some other purpose. Through these holes these holes the moisture is drained from the surface and leaves the plants to perish. When the ground is frequently stirred the continuity of these drains is broken and the moisture remains longer to nourish the plants. C.—*N. E. Farmer.*

Salt as a Manure.—Mr. Smith—Having long considered salt as one of the cheapest and best manures we could apply to our lands, and having a small lot of very light sandy land, I determined to apply it in conjunction with clay and a small quantity of lime, which I concluded to add only because it was convenient to the spot to be manured. I dug from a pit two hundred bushels of good red clay, and to a layer of twenty bushels I scattered not quite a peck of ground alum salt and one bushel of oyster shell lime unslacked; going on until the whole of the clay was used. To the two hundred bushels of clay there was ten of lime and two of salt. The heap remained in that situation until late in April, when I measured an acre of land carefully, which had been ploughed the preceding winter; on this the mixture was neatly and carefully scattered; on the adjoining acre I scattered two hundred and twenty bushels of the clay, without the salt or lime; on the next I scattered ten bushels of lime; and on the fourth I sowed two bushels of ground alum salt. The land was then laid off in rows four feet each way and planted in corn which was thinned to one stalk, and all received the same cultivation. In October the corn from the first acre was gathered, and the measured thirty-one bushels and one peck. On the second there were fifteen bushels and a half; about the quantity the land would have been capable of producing without the addition of lime or other manure. On the third twenty-one bushels and a half peck. And on the last, with salt alone, twenty four bushels and a half peck, making a large difference in favour of the mixture. If the result of this experiment is worth insertion in your useful paper, it perhaps may be of use to the owners of the sandy soils in the lower part of Virginia.

Richmond, (Va.) June 1, 1832.—*Amer. Far.* SANDY LAND.

To Destroy Ants.—Having read in pages 278 and 279, two complaints against ants, I am induced to send you the following: Some time ago, a drawer, in which I kept sugar, was so much infested with ants, that we were obliged to remove the sugar from it. It happened from some cause or other, a small piece of camphor was laid in the drawer, and on opening it a few days afterwards, we were agreeably surprised to find the bottom literally covered with dead ants. This induced us to repeat the experiment, and from that time we have found no difficulty in keeping the sugar free from their depredations, by allowing a small piece of camphor to be in one corner of the drawer. Where trees upon walls, or plants, are infested, I should recommend small pieces of camphor, to be thrown on the ground round their stems and in some cases to dissolve a little in alcohol, and sprinkle it over the leaves in a diluted state, with a common syringe.

JOHN J. GODFREY.

Albany, State of New-York, March 3, 1832.—*Hort. Reg.*

Cure for Glanders.—In looking over a late number of the Lancet, a medical work published in London, we find an article devoted to the treatment of the above disease, which is so frequent and fatal among horses.

The first medical measure recommended is a *pure atmosphere.* It is said glanders is the peculiar disease of stable horses, and it is urged that the horse must be turned out where he can at all times be surrounded by pure and cool air. This must constitute the foundation of hope, in all attempts to remove the complaint. It is in vain to use local or other medicines upon the horse, while he is confined in the stable. No sound horse should be permitted to be in the pasture or inclosure where the glandered horse is. A field should be devoted to the infected animal, and neither cattle nor sheep should feed in the same ground with him, because the virus may be comunicated even to them.

Local applications, such as injections, &c. to the nostrils, are deemed useless if not prejudicial, because they only serve to increase the morbid irritation already existed in the effected part.

Counter irritants, such as blisters or setons along the nasal bones should not be omitted, provided the animal gives indications of pain when pressed there by the fingers.

Tonics, particularly the sulphate of copper, (blue stone,) have been found efficacious where the strength of the horse is considerably reduced. The copper will act as a general tonic, and at the same time with peculiar local determination. Its effects in healing nasal abrasions and arresting nasal discharges, is thought to be unquestionable. It may be given in doses of sixty grains once or twice a-day. It may be dissolved in a bucket of water.—*N. E. Farmer.*

Feeding of Cattle.—It is stated by M. Dubuc, President of the Agricultural Society of Rouen, that three measures of oats, pounded or broken up (concassées) and moistened, are equivalent, as aliment, to four measures given in the grain.

It is observed, also, that four parts of different kinds of forage, coarsely chopped, and deprived of dust, will go as far as five parts of the same forage given entire and separately.

There exists in Paris an establishment where mixtures of food are prepared on this principle, for horses; it is that of M. Payen. The kinds most generally mixed are clover, and lucerne. They are then cut up, so that the horses are obliged to chew and masticate them in the most perfect manner.

The mixture of vegetables which is considered as the most suitable for draught horses, is composed of equal parts of cut straw, clover and common hay. Barley and oats coarsely ground (concassées) and mixed, answer a better purpose than when eaten separately.

M. Dubuc visited this establishment and found that the horses which worked the machinery, are fed in this manner, and that they look well and are vigorous, though kept at work ten or twelve hours a day. He cites also the teams of M. Sévin, mail contractor at Orleans whose horses were fed on cut straw, mixed with one fifth clover and lucerne, and sometimes a little hay. They were fat, strong, and substantial. They give them also, Barley or Oats crushed (concassées) and moistened. Care must be taken to place this food in deep mangers, so thet it may not be wasted. Oats are frequently mixed with the last portions given them, prior to their being harnessed.

M. Dubuc was assured by both these proprietors, that there was a saving of one fiifth at least, by this method, and that besides the horses were in better condition, and endured more labor than those fed on common unprepared materials.

The Omnibus establishments of Paris, which employ five or six hundred horses, have just adopted this improved food.—*Bib. Univ. Juin*, 1831.

Calves.—It some times happens that calves are troubled with a looseness of the bowels, or scouring, more especially after rains, when the grass grows fast. To prevent this, a little mixed with meal and given to them, will in most cases, stop the complaint within a few days.—*Gen. Far.*

Large Sheep.—A prodigious Switzerland sheep, exhibited at Lincoln Fair, caused an extraordinary sensation among the farmers, few of whom ever dreamed of seeing a sheep of the enormous weight of 402 lbs., standing five feet in height, and about seven feet in length! This sheep was yeaned on the mountains of Switzerland, and is now three years old. It has been publicly exhibited to the most distinguished naturalists in Europe, and at the Thuileries in Paris, before the royal family of France. It has produced annually 35 lbs. of wool, and is carried in a caravan to fairs, as an extraordinary curiosity.—*English paper.*